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ABSTRACT

These materials include a report, evaluation, and book written about a workplace literacy project involving education (Alpena Community College), business and industry (Besser Company and Alpena Power Company), and labor (Thunder Bay Labor Council). The report specifies objectives; accomplishments, including development of eight courses in math, communications, and reading and competency-based, job-related basic skill instruction for 130 workers; and evaluation results. The evaluation report describes the methodology, which included pre- and posttest scores on Educational Testing Service Tests of Applied Literacy skills, two questionnaires to measure attitudes at program end, and site visits. It reports that the project was successful: adult learners increased knowledge as indicated by posttest means higher than pretest means and adult learners were positive about classes. Some problems are identified: no clear target group; discontinuation of pre- and posttesting; and adult learners' desire for longer courses. Four data tables are provided. Intended to promote workplace education, the book provides a skeletal outline of the project. Seventeen chapters cover the following: history, start-up, workplace classroom, theoretical framework, students' case studies, shop math, setting the agenda, interactive approach, integrating computers into workplace instruction, sample of student work, computer numerical control, productivity question, evaluation, team concept, administrative evaluation, dissemination, and keeping it going. (YLB)

ED356345

ALPENA COMMUNITY COLLEGE
WORKPLACE PARTNERSHIP PROJECT

Alpena Community College
Alpena, Michigan

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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CE 063 418

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1. Meeting the Grant Objectives

There were three specific goals to this project. They were:

1. Implement a workplace literacy project through an exemplary partnership between education (Alpena Community College); business and industry (The Besser Company and Alpena Power Company); and labor (the Thunder Bay Labor Council).

The Alpena Power Company was unable to fulfill its partnership agreement as of August, 1991. This was clarified and approved through the Program Officer, Marion Banfield. At this time it was determined that Besser Company and its subsidiary, Baker Industries, could serve the project as partners. Another partner, also under Thunder Bay Labor Council was added in March, 1991 out of a need to expand the research and development of the existing curriculum and to reach the target number of 100.

Under this goal the following accomplishments were made:

a. An advisory council was set up including members of state and local business, labor and education representatives. The Council met every six weeks. The final meeting was January 15, 1993. In addition, Project Advisory Teams were created for each site. These consisted of key personnel, teachers, management and students who met to discuss the classes at their site, evaluate progress, and plan for improvements and greater recruitment.

b. A project director was hired.

c. Consultants were retained from Penn State and others as needed.

d. The project team was defined.

e. Staff was employed and training began. The teacher in-service has been on-going.

f. Recruitment was planned with management and key personnel from the partners.

g. A curriculum was developed consisting of eight workplace specific courses in the areas of math, reading and communications. Course descriptions are attached. In addition, a computer lab was set up at each site that was used during classes as well as during employee free time.

h. A system of monitoring student, teacher, administrative and overall program progress was established. Forms for observations, surveys, and assessments were created. This data was gathered five times during the project and collected into instructional reports. These documents were shared with administrators, college faculty, the advisory council, and the Penn State Team.

i. Appropriate materials were developed for each course and again for each group of students. The emphasis was on developing instructional strategies that could be used in a greater variety of workplace settings in courses that lent themselves to a variety of work scenarios. For example, an entire curriculum of basic skills was built around the CNC machines. Students needed to know the basic math to run the programs, how to efficiently read the manuals, and how to communicate as leaders to train other workers to run the machines. This was a practical, highly successful part of the project. It was cited by Penn State's WPSX as an exemplary model of instruction.

j. Project records were maintained in the College office and team room. Data was used in the writing of detailed instructional reports.

k. Project results were monitored by the project advisory teams, the advisory council (called Oversite Committee) and the WPP Instructional Team on a regular basis. Reports were issued to all college supervisors as well as program officers.

2. Provide 100 Besser/Alpena Power Company employees with competency-based basic skills training targeted to the literacy skill requirements of their changing workplace by the end of the 18-month project period.

a. In-depth assessment was conducted of over 150 students. IEPs were created and educational plans put into place.

b. Educational Employability Plans were prepared for each student as individual education plans based on quantitative and qualitative assessment strategies. The target number was 100. The grant served 130.

c. Students were provided referrals to established educational opportunities both within the grant and as a part of a post-secondary educational plan.

d. Competency-based, job-related basic skill instruction for 130 workers was provided in an open-entry, open-exit setting. All workers were provided with IEPs and the opportunity to take more than one course. The basic skill instruction came from eight courses developed exclusively for the workplace classes in math, communications, and reading. These courses received national and state commendation as exemplary functional-contextual curriculum based upon basic skill concepts and theory.

e. Student progress toward individual goals was checked every two weeks in each course. Every student who remained enrolled in the WPP classes made significant learning gains.

f. Ancillary services were provided as counseling and tutoring to insure that each student felt comfortable in the regular class setting.

g. Educational counseling was available at the College, but it was primarily provided by the workplace faculty during each start-up session of classes at the site. About 25% of the students are now involved in further educational pursuits.

3. Evaluate project, determine replicability, and disseminate pertinent outcomes.

a. Post assessment learning gains of all participants were conducted regularly. Results are attached.

b. Post evaluative data in the form of surveys, student interviews, administrative interviews, etc. was completed.

c. The results of learning gains have been noted. One company (Besser) reported a 5% productivity gain.

d. The assessment instrument (TABE) was appropriate to gauge student levels in content areas as compared to national averages. It is not, nor is there a test available, appropriate for determining student needs in a workplace setting based on the job requirements of each site. Our instructors created their own with a good deal of success. The overall assessment design contained both qualitative and quantitative measures. This was very appropriate to a variety of student needs. Software used was primarily authorable. This was much more context-specific and useful to the project than published software. The same was true of published materials. After some dissatisfaction with "canned" texts, instructors created lessons from machinist manuals, information from employees and management about needed skills and subject information, various artifacts from each job setting, and primarily from asking the students about their jobs and learning needs. This truly addressed the learning issues at each site in a satisfactory manner.

e. The outside evaluators were very helpful throughout the project. They were readily on-call for consultancy and assistance. Project reports were sent to them regularly.

f. Reports were regularly prepared and distributed as mentioned earlier in this document.

g. The replicability of the project was proved when the ACC Instructional Team was able to take the frame of the project into Fletcher Paper Company, a new partner with a totally unrelated work field from the one at Besser Concrete Block Manufacturing Company and successfully implement workplace classes. The key to the replicability was two fold: Good workplace learning assessment procedures and a highly flexible curriculum based on successful learning strategies for adults. These strategies could be applied in any setting. The emphasis of the research and design was on application of strategy, not creation of specific materials. The materials relied on the strategies needed and the job positions of the students who enrolled in the courses.

h. Project dissemination included reports, news articles, pamphlets, brochures, public address, and national coverage in a PBS documentary on literacy and follow-up video coverage about teaching strategies and curriculum design.

All of the above are available nationally through WQED and WPSX, both PBS affiliates.

2. Timeline

The adjustments to the original timeline fell between May 1991 and August 1991. The project director was not hired until August. Classes began in September, 1991 as scheduled. A three-month no cost extension was granted in August due to a lapse in enrollment over the summer months. All adjustments to the schedule are noted on the attached sheet. All timeline information is correct, just moved back somewhat due to the summer adjustment. All proposed accomplishments were completed and in some instances exceeded. The grant served more than the target number and gained valuable dissemination attention. A project manual and ERIC report will come from the Alpena data.

3. Our Workplace Partnership Project delivered individualized instruction to 215 students (125 unduplicated students) in the content areas of math, reading, and communications. These students were employees of three local companies: Besser Company, an international manufacturer of concrete blockmaking equipment employing about 400; Fletcher Paper Company, a specialty paper manufacturer with 225 employees; and Baker Enterprises, a sheet metal manufacturing company with about 80 employees.

A broad demographic profile of the students we served is as follows: white male, blue-collar, 25-55 years old, 5-35 years experience, union affiliated, head of primarily single-income households.

We offered general math, algebra and trigonometry with shop applications, reading improvement 1 & 2, communications A & B, plus CNC Math, CNC Reading, and a CNC Train the Trainer class. Each class met for sixteen hours. Our total instructional time amounted to 448 contact hours.

Students who did not complete planned project activities, fell into two main categories. One, they had been laid off at some point during the class. Or two, they had a family crisis that prevented them from following through to completion. Of the 215 students we had in class, less than 5 percent failed to complete the course they had begun.

We used the ETS and the TABE for pre and post standardized tests, informal pre and post tests, plus pre and post attitude surveys charted on a Likehart scale. We used portfolio assessment extensively, even in the math journals. Each instructor kept a journal entry for every class taught, including a personal reflection at the conclusion of each course. Instructors observed their peers at least once during each round of classes, as did the project director, and peer observation forms were filled out and returned to the instructors. An administrative evaluation form was also part of the instructors' responsibilities for each round of classes.

On attitude surveys, seventy percent of students either agreed or strongly agreed on a Likehart scale that they were (1) satisfied with the content of the courses, (2) that the instructor was well-organized and helpful, (3) that they were satisfied with what they'd learned form the class, and (4) that they want to take other workplace classes in the future.

Below are representative samples of ETS score improvement from all three content areas from three separate round of classes:

WORKPLACE PARTNERSHIP PROJECT
COMMUNICATIONS ETS TEST SCORES
PRE AND POST TEST
DECEMBER, 1991

Name	Pre-Test ss	Pre-Test rs	Post-Test ss	Post-Test rs
Student 1	18	310	23	370
Student 2	19	320	22	350
Student 3	20	330	24	390
Student 4	22	350	21	340
Student 5	20	330	22	350
Student 6	16	290	20	330
Student 7	19	320	21	340

WORKPLACE PARTNERSHIP READING ETS TEST SCORES
OCTOBER, 1991

Name	Pre-Test ss	Pre-Test rs	Post-Test ss	Post-Test rs
Student 1	23	370	24	390
Student 2	21	340	24	390
Student 3	19	320	22	350
Student 4	23	370	24	390
Student 5	22	350	23	370

WORKPLACE PARTNERSHIP ALGEBRA ETS TEST SCORES
MARCH, 1992

Name	Pre-Test ss	Pre-Test rs	Post-Test ss	Post-Test rs
Student 1	7		12	
Student 2	10		11	
Student 3	12		12	
Student 4	8		9	
Student 5	8		9	
Student 6	11		11	
Student 7	10		10	
Student 8	12		11	
Student 9	10		9	
Student 10	11		10	

ss: Scaled Score
rs: Raw Score

The following pages represent informal student outcomes, attitudes, progress, and feedback.

WORKPLACE PARTNERSHIP GENERAL MATH
TEST SCORES

November 25, 1991 to December 18, 1991

Name	11/25/91	12/18/91	%Improvement
	72	94	23.4%
	48	92	47.8%
	23	68	66.2%
	28	62	54.8%
	24	90	73.3%
	37	86	57.0%
	70	82	14.6%
	25	86	70.9%

WORKPLACE PARTNERSHIP PROJECT
INTERACTIVE COURSE DESIGN
Reading Improvement 081

COURSE DESCRIPTION

Reading with greater speed and accuracy in the information age will be emphasized. Organizational and comprehension strategies of reading-related tasks with worksite materials will be introduced and practiced in experiential settings. Use of a variety of reading materials will be emphasized.

STUDENT GOALS

*I want to cover more information without re-reading. (GU)
*I want to gain skills to read faster. (RL)
*I want to read less text to be able to filter through more material. (MS)
*I want to learn new words and retain them. (EG)
*I am interested in re-education, new knowledge. (DK)
*I want faster reading ability with more comprehension of what I read. (CB)
*I want to read books and enjoy it more. (GU)
*I want to be able to converse with people about what I have read. (EG)

INSTRUCTIONAL DESIGN

Establishing a reading speed and comprehension baseline for each student at the class outset is important. This will be done by using an instrument that discusses the reading process and sets the tone for reading development. Reading techniques and skills will be discussed, modeled and applied during each class session to correct poor reading habits. A method for comprehension development will be introduced and practiced. Each student will then prepare this method for class presentation on any piece of material they choose. Throughout the course, students will work on individual vocabulary development and establish some lifelong learning and reading goals.

STUDENT REACTIONS

*The reading class was a very rewarding opportunity for me. Some of the basic skills we covered will be with me the rest of my life. Also, I learned you can read faster and understand more. All it takes is desire. (GU)

*This class on reading was more than I expected. It helped me re-think my reading habits and obtain new skills. (RL)

*The variety of items covered was great--"speed" reading, vocabulary, study methods. Amazes me how much ground we covered in such a short period of time. Struggled with reading test today (post-test) and was surprised to see that both reading speed and comprehension increased, however. (MS)

*The new techniques of teaching reading have helped me. The PRO method has helped me the most, to comprehend more of what I have read. Good lesson on key and main ideas. (EG)

*Never had this type of training before. Did test and was interested in the results. Interesting in the fact there is room for improvement. I learned I can skim a subject and still comprehend the article. (DK)

*My experience in the class was beneficial. With the technical information that was imparted to me, both my speed and comprehension have increased dramatically. (CB)

THE WORKPLACE PROJECT FROM A STUDENT'S PERSPECTIVE

BY KENDALL SUMERIX

A conversation with a student at Besser Company revealed that some new things are happening in the shop. The student reported that before taking a workplace math class he never used the metric system before because he never liked it. Currently, only three weeks after the class, he uses a metric scale for measuring his work. This provides many advantages. First, many drawings contain metric measurements and when these are converted to the English measurement system they often don't correspond to any common fraction. This causes errors in trying to build accurate machines. Accuracy building metric parts can only be achieved by having metric drawings, metric scales, and people who understand the metric system. For this individual worker, following the metric system through the assembly process has improved accuracy, made work less confusing, and I quote "saved a lot of time".

The worker also noted improved confidence in his work at Besser. Now he knows when metric measurements are correct. A side benefit from all this is a sense of working together. "It's different now. People from the math class- they always speak when they see each other now." he stated. This worker is excited about his chance to learn how to make a difference in the workplace. Something new is happening in the shop.

[illegible]ENA
COMMUNITY COLLEGE

666 JOHNSON STREET
ALPENA MI 49707-1495

(517) 356-9021

April 29, 1992

Dear Paul,

We decided to write this letter to inform you about what we're doing in our Wednesday afternoon communications class. As a result of a government grant, we are able to continue our education while working toward college credit.

As a group, we're working on ways to become better communicators. This serves as an introduction for some and a refresher for others, leading to higher education for all. We have a good mix of people who actively participate in class and are becoming more comfortable communicating. We are becoming less fearful of rejection and more receptive to constructive criticism.

In order to improve our reading and writing skills, we have critiqued each other on articles we've written in class. We have given oral presentations in front of a video camera to help develop our speaking and listening skills. Reviewing and critiquing teaches us to be more comfortable with the give and take that is crucial to good communications.

We appreciate the opportunity to extend our education in a comfortable environment. We hope that more people see the value of this benefit as we have. We believe that improving ourselves improves the Fletcher team. We welcome you to attend any of our future classes.

Thank you,

Teammembers: Carol Jasso
Mike Bushey
Mike Druski
Bob Bobola
Randy Manning
Jim Matuzak
is Hoppe
n Riopelle
Herb Specht
Jerry Smigelski

STATE OF MICHIGAN
OFFICE OF THE GOVERNOR

MICHELLE ENGLER
FIRST LADY

March 11, 1992

Students of Communications
Ms. Rita A. Macy, Asst. Dean
Workplace Partnership Project
Mr. Don MacMaster
Communications Instructor
Alpena Community College
666 Johnson Street
Alpena, Michigan 49707-1495

Dear Students:

Thank you for the letter you presented to me during my recent visit to Alpena Community College and the Workplace Partnership Project. I was very interested to learn of the educational partnership between Besser Company and Alpena Community College. I offer you my congratulations and appreciation for your participation in working to bring new, innovative and important enrichment programs to Company employees.

As you know, the United States is part of a global community, now based on economic rather than political or military relationships. To maintain a leadership position, we must continue to compete successfully in this global community. It is apparent that the Partnership program is meeting the challenge of today -- that is, restructuring the educational process to face the future. We can tap the incredible talents of all of our nation's citizens by providing them with educational experiences through opportunities such as those offered by this special partnership. I am confident that with the help of the Workplace Partnership Project and its communication programs, we will be able to accomplish this.

Again, thank you for sharing your thoughts and views on this most effective and innovative program! Best wishes for continued success.

Warm regards,

Michelle Engler

Michelle Engler

P.O. Box 30013 • Lansing, Michigan 48909

4. We targeted local, state and national media outlets as well as fellow community colleges and literacy providers.

On the national level, our Workplace Partnership Project was featured in Project Lifelong Learning, a PBS documentary series on successful literacy providers in the workplace, the community, and family settings. Filmed by WQED/Pittsburgh and WPSX/Penn State, the workplace documentary explores our project as well as two others, focusing on the five strategies that can help adults discover the power of lifelong learning. Narrated by former NBC anchorman Edwin Newman, the documentary also identifies the factors that contribute to a successful business/ education/labor partnership in a remote, rural setting such as Alpena, as well as some of the long-term benefits of collaboration.

In addition to the half-hour television documentary, six staff development videos were produced by WPSX. These staff development videos focus on the five strategies identified by the Penn State Institute for the Study of Adult Literacy: (1) meet the needs of the learner; (2) develop support for lifelong learning; (3) accommodate learner differences in the program; (4) develop higher order skills; and (5) enable learners to use all language processes in their lives. In each area - workplace, family and community-based literacy programs - there is an overview video and an in-depth video for staff development. The in-depth gives examples of ways that viewers can put the strategies in new or existing programs.

The workplace documentary has been shown on our local PBS affiliate, WCMU/Mt. Pleasant and WCML/Traverse City. The staff development videos have been accessed to all state and local literacy providers, including other community colleges, library-based literacy projects, the public schools in our service district, our local and neighboring Intermediate School Boards, and human resources managers across our service district.

Also on a national level, our project was written up in Community College, Business, and Industry Relations in the February 3, '92 edition. The article focused on the competitive edge offered by partnerships between business and community college.

We also completed a "how-to" manual on starting up and managing a workplace project. We targeted the same group as received the staff development video.

Rita Macy, WPP Project Director, attended the project directors' closeout meeting in Washington D.C. as well as other seminars and conferences related to assessment and evaluation. Project staff attended the AAACE annual conference in Anaheim, California, where we gave a roundtable presentation on our project. Project staff was featured on a December 7 teleconference on New Strategies for Literacy and Lifelong Learning sponsored by the Penn State Institute of Adult Literacy.

On the state level, dissemination in the form of student work and attitudes has reached all area political representatives. Michelle Engler, first Lady of Michigan, visited Alpena to discuss the project. Regular meetings of our Oversite Committee included representatives from the Michigan Department of Labor, Northeastern Michigan Council of Governments, the Alpena County Library, the Intermediate School District, plus Alpena Community College and local business partners in the WPP.

Locally, we have published informational articles in the Alpena News, our local daily newspaper. The project Director has spoken about the WPP on Channel 11, our local CBS affiliate. We have endeavored to keep a high level of visibility locally while keeping in touch with other workplace projects in order to share insights.

5. Evaluation Activities

The Alpena Workplace Project was evaluated twice by outside evaluators from Pennsylvania State University. During the first evaluation in September of 1991, evaluators Barbara VanHorn and Bernice Schaefer suggested that since the project did not acquire a director until August of 1991, three months after the award date, that an extension be requested. That was done. They also evaluated the eight courses and proposed instructional strategies finding the project to be progressing satisfactorily. In October, 1992, Ms. Schaefer returned to re-evaluate the project finding all aspects to be exemplary, especially the comprehensive instructional design of the curriculum.

Teaching strategies and use of highly functional contextual materials, all created by the project's instructional team were termed excellent. The evaluator spoke with managers, students, instructors and staff about the value and effect of the project. Materials collected include student surveys and interview results.

Informal evaluations include five comprehensive instructional reports which examine student progress, assessment procedures, instructional strategies, teacher performance, and overall satisfaction of employees and management at the site after each round of classes are offered. Reports contain authentic student work, sample lesson plans and materials, test results, and teacher reflections. These are all on file in the project office.

With the exception of instructional report number five, which is in process, these documents have all been forwarded to project officer, Marion Banfield as they were assembled.

Standardized pre and post-tests were given. During the first six months of the project the ETS Tests of Basic Skills were given. During the final part of the project the TABE was used as it seemed to more appropriately assess the audience. In every class, students made significant gains on standardized and/or teacher-made tests. Sample results are attached.

In the instructional reports previously submitted, samples from student portfolios suggest that authentic student assessment shows a great deal of improvement. Students worked on functional contextual materials which are included as samples. In addition, at the Besser site, for the math classes, the company's Inspector's exam was used because it reflects an overview of all the math information needed by workers at that site.

A test was constructed by instructors to measure math related specifically to CNC machines (computer numerical control) which was administered in addition to the TABE. Students showed marked gains on this test that emphasized simple algebra. Standardized tests were always administered, however, they caused student stress and never measured what the instructional team felt was pertinent to the job-related materials of the workplace courses in basic skills education.

Indicators that related to job performance primarily came from supervisors. Both the management representatives from Besser Company and Fletcher Paper Company indicated that the programs improved employee morale. This was especially significant for Besser Company since they laid off over one-third of their workforce due to economic duress over the past 12 months.

The average age of the students in the classes was 40. Primarily the students were male with high school diplomas. They noted in their journals and evaluative comments that the classes helped with specific job-related items such as use of tools, previously unused; doing metric conversions; using the scientific calculator; reading manuals with greater efficiency, becoming better speakers at union functions, and communicating more effectively with fellow employees and management in regard to sensitive issues.

In addition, students were surveyed each time to assess their attitudes toward instruction. Results are attached. The ROAD Test was developed by Penn State for their state-wide CDL program. It is a standardized measure. The questions are all relevant to adult learning attitudes.

A final piece of the evaluation process, assessing on-going workplace educational needs was included as a means of connecting the current project to the institutionalization of the project. A sample form is attached.

6. Key Personnel Changes:

The lead teachers on the project are Kendall Sumerix (Math), Don MacMaster (Communications) and Janet Fulton (Reading.) The original teachers named were Charley Rosebush (Math) and Roger M. Phillips (English). The original tutorial supervisor was Patricia Lee who was to supervise tutors through the Alpena Library's READ Project. The new director is Janet Fulton. Tutors are hired as a part of the original grant provision. READ tutors are volunteer and have not been used since most tutorial work required personnel capable of helping with computer assisted instruction.

As of May, 1992, Rita Macy went from 100% Director of the Project to 90% in order to supervise the CDL grant. The other 10% was picked up by Charles Wiesen.

As of November 6, 1992, Don MacMaster became Project Coordinator at 75% time and Ms. Macy retained 15% as she was assigned Acting Director of the Educational Talent Search program.

All supervisory changes were approved through the federal budget and project officers, Sonja Turner and Marion Banfield. Other changes were made before the classes began.

\WPPsumm.

EVALUATION OF THE ALPENA COMMUNITY COLLEGE WORKPLACE PARTNERSHIP PROJECT

Prepared by:
Bernice Paradise Sheaffer
Project Associate
Institute for the Study of Adult Literacy
The Pennsylvania State University

EVALUATION OF THE ALPENA COMMUNITY COLLEGE WORKPLACE PARTNERSHIP PROJECT

INTRODUCTION

The National Workplace Literacy Program funded the Alpena Community College Workplace Partnership Project from May 31, 1991, to October 31, 1992, with a three month extension. The project ended on January 31, 1993.

According to the proposal, the original partners were to be Alpena Community College, Thunder Bay Labor Council, Besser Company, and Alpena Power Company. All partners are located in Alpena, Michigan, a small town in the northeastern area of the lower peninsula of Michigan. Before the project began, however, Alpena Power withdrew from participation. When classes began, Besser was the sole site. During the project two more companies joined the partnership: Baker Company and Fletcher Paper Company. A total of 230 adult learners participated in the classes. The majority of participants (176) were workers at Besser.

Classes were in three major areas: reading, communications, and mathematics. Mathematics classes included general math, algebra, and trigonometry. Computer Numerical Control (CNC) math, reading, and communications classes were developed later in the program. A literacy task analysis was not used to develop the curriculum, but rather class content was based on the expressed needs of the adult learners. Table 1 shows the number of students by class and company for the entire project.

Project staff consisted of a project director and four instructors. Most classes were 16 hours, with the CNC classes being 8 hours of class and 8 hours of lab work. Classes were held on site. Besser workers attended classes mostly on the clock, while Fletcher and Baker workers were off the clock. An advisory committee composed of company management, union representatives, and Alpena Community College staff provided oversight of the project.

METHODOLOGY

The evaluator made two trips to Alpena. At both times she interviewed project staff as well as representatives from Besser and Fletcher. Adult learners participating in the first classes took a pretest and a posttest, the *ETS Tests of Applied Literacy Skills*, either prose literacy or quantitative literacy. The same participants also completed two questionnaires to measure their attitudes at the end of the program. One questionnaire was completely quantitative, while the other consisted entirely of open-ended questions. Alpena Community College personnel collected data. Project staff discontinued the use of the tests approximately halfway through the program, however, so data are incomplete. Project staff felt that these tests did not accurately reflect the materials taught in the class. Participants complained about taking the tests and completing the questionnaires, since this was done during the class hours and they believed that these activities took too much time away from instruction.

The available pretest and posttest scores were analyzed using t tests for related samples. Each subject area (reading, math, communications, algebra) was analyzed separately since different tests were used. Data from questionnaires were tabulated separately for each subject area.

RESULTS

Site Visits

The evaluator visited the site twice. The first visit was in September 1991, after the director had begun working but before classes had begun. The second visit was almost a year later,in July 1992 after classes had begun at both Besser and Fletcher but before they had started at Baker.

Site Visit, September, 1991. The evaluator met with the project director, Rita Macy; three instructors; the president of Alpena Community College, Dr. Donald Newport; the president of Besser Company, James Arbuckle; the head of the union at Besser, Gordon Udell; and several Besser workers.

Project staff were enthusiastic about the project. All agreed that the project would be learner-driven, with the needs of the learners in each class setting the tone for the class. Instructors used a portfolio approach to evaluate learners. They agreed, however, also to administer *ETS Test of Applied Literacy Skills*, either prose literacy or quantitative literacy as pretests and posttests to all learners to measure growth. Learners also completed questionnaires.

While Besser management stated that they were also enthusiastic about the project, they did not appear to be eager to start classes. Management explained that while they were interested in the project, there were other more pressing problems to be faced by the company. Before visiting the plant with the evaluator, the project staff had not been allowed to be out on the plant floor to see what the workers did.

When asked what they saw as goals of the project, Besser management indicated they desired an increase in productivity as well as better communications between workers and management.

Classes began soon after the site visit through a concerted effort of Besser, Alpena Community College, and project staff with the assistance of the Institute for the Study of Adult Literacy.

Second Site Visit, July 1991. By the second visit, classes had been meeting for approximately 10 months. The second company, Fletcher, was also holding classes.

The evaluator met with Rita Macy; two of the three instructors (one was on vacation); the director of human resources of Besser, Gerry Doyle; and Michael Brusky, the training coordinator and mill scheduler for Fletcher.

Project staff were pleased with the progress of the program. In general, they felt the adults attending their classes were satisfied and were learning. Both instructors commented that they put a great deal of effort into the program. One instructor explained that he was accustomed to teaching classes that had been developed and organized with less input from the learners. That, he believed, was easier, but not as satisfying. Instructors stated that they worked to create a class feeling of cooperation. These were not classes in which the instructor stood in the front and lectured. Instead, learners worked in pairs or teams, helping each other develop. This type of class, they said, was actually harder to teach but more interesting.

Gerry Doyle, the director of human resources at Besser, stated that he was not involved in the program when it first started. This, he believed, was a mistake. He stated that the top human resources person in a company should be involved in a project such as this from the start. Without this person's support, he said, the project could not work.

Doyle stated that there had been some differences of opinion between him and the project staff over the issue of the course content. He believed that keyboarding and computer skills should have been taught. He said he knew that the goal of the project was to increase the "literacy" of the workers, but his definition of "literacy" included using a computer. The disagreement over course content seemed to create some problems between the company and the project staff. Doyle said that the problem concerning course content was resolved, however, with the development of CNC communications, reading, and math classes. This, he believed, would be more directly work related, while still being appropriate for this project.

Doyle stated that he saw enthusiasm in the workers toward the project. He felt the workers saw that Besser was making a commitment toward their future. Productivity, Doyle stated, had gone up, but this improvement was difficult to tie this directly to the project.

Doyle saw a change in the executives of the company. He felt they were listening more to workers than they had in the past and that the classes were the reason for this change.

Michael Brusky explained that Fletcher's management style had changed recently. The company was more interested in the team approach, with all employees being valuable members of the team.

Brusky stated that Fletcher believes that better people become better workers and that basic skills training "builds better people." Unlike Besser, Fletcher employees took classes on their own time. This, Mr. Brusky explained, was not a problem. Fletcher did not expect the classes to be tied to work as closely as Besser did.

Brusky praised project staff. He said the communications between the company and project staff were good. "We are honest with each other. There are no hidden agendas," he said.

The workers received the classes well. There were no negative comments. Recruiting was not difficult. There was no pressure and even no coaxing. In fact, the company's daily newsletter "sold" the classes. The classes created a "bond" between employees, Mr. Brusky stated.

Pretest-Posttest Analyses

Table Two reports the results of the analyses of the pretest-posttest data. All posttest means were higher than pretest means. None, however, showed a significant difference. These results can most likely be attributed to two factors. First, the tests did not reflect the curriculum. A test that more closely matched the course content might have shown more differences. Furthermore, the numbers of individuals were small; the largest group contained only 23 subjects. To find significant differences with these small numbers would be difficult.

Adult Learners Attitude Questionnaires

Learners' attitudes toward the classes were measured in two ways: with a quantitative questionnaire and an open-ended questionnaire.

Quantitative Measures

Table Three shows the results from the quantitative questionnaire. On the whole, the responses to the statements were positive with most means above 4 (with 5 being the most positive response). Learners in communications and reading classes gave negative responses to the statement, "There was ample time for learning and practice during the course sessions." The mean responses from the learners in the communications and reading classes were 2.556 and 2.5 respectively, indicating that learners believed more than the 16 hours of class time was necessary. The most negative responses were to the statement, "There is a positive and supportive attitude toward the classes by upper management." Again, the learners in the communications and reading classes were the most negative with means of 2.25 and 2.667 respectively. The learners in the math classes were more positive with a mean of 3.087. The CNC learners' responses were most positive with a mean response of 4.37.

Mean responses from all classes were positive on statements that dealt with learners' attitudes toward the classes. The statement, "There is a positive attitude toward the partnership courses among the students enrolled" evoked very positive responses with the highest mean a 4.643 for CNC and the lowest a 4.25 for reading. Learners also responded positively to the statement, "You feel more confident about your learning abilities because of this class." All means were higher than 4.0, CNC being the highest with 4.286, and math the lowest with 4.038.

The learners' perceptions of the instructors were measured by responses to several statements. For the most part, the responses were very favorable. Especially favorable were the responses to the statement, "You feel comfortable with asking your instructor to teach what you feel is important to your learning needs." All means were well above 4.0, with communications at 4.5 and CNC at 4.571.

Learners' overall assessment of the course content was measured with the statement, "You are satisfied with what you learned from the class." All means were close to 4.0 except for CNC with a mean response of 4.286.

Open-Ended Questionnaire. Each learner completed an open-ended questionnaire at the end of classes. Table 4 summarizes responses. In general, the responses indicated that learners were satisfied with the program. The most common response to questions about how the learner benefited from the classes involved an increase of self-confidence. A total of 22 responses mentioned an increase in self-confidence. One learner said the math class "helped me realize I'm not a dummy." The most common complaint involved class time, either too little class time or too much time completing forms and taking tests. More time needed was mentioned in 52 responses. Fewer forms or tests formed the basis of 20 responses. One learner said that "too much time [was] spent on completing forms like this."

Conclusions

This project was successful in many ways.

More than 200 adults received instruction at three different companies in Alpena. The combined recruiting efforts of project staff, company management and staff, and the union were successful in attracting many individuals, all of whom were volunteers.

Alpena Community College staff successfully recruited two new partners after the project had started. When Alpena Power dropped out of the project, only one manufacturing partner remained. The college staff found two new partners, Fletcher and Baker.

The project overcame initial problems of a lack of consensus concerning project activities between Besser Company and project staff. The slow start of the project as well as the differing viewpoints concerning course content were problems at the outset of the project. Besser management wanted course content to be more job skill related than literacy based. However, Besser and Alpena Community College successfully resolved the problem. The problem never arose at Fletcher or Baker. With the inclusion of communications, mathematics, and reading classes tied directly to operating CNC machinery, Besser was satisfied with course content. Fletcher never saw the courses as being directly tied to the workplace, but rather as courses to develop a well-rounded employee. Baker entered the project late and had specific courses in mind. Project staff, working directly with company staff, developed the courses.

Adult learners increased knowledge by attending workplace classes. All posttest means were higher than pretest means. The mean differences on standardized pretests and posttests were not statistically significant mainly because the sample sizes were so small. Instructor-made tests also showed increases. These tests, however, did not lend themselves to statistical manipulation.

Adult learners were positive about the classes. Both questionnaires indicated learners' positive feelings toward the classes and the instructors. Learners reported that they had increased their self-confidence and that the classes were worthwhile. Almost all reported some workplace or personal benefit from the classes.

Instructors were successful in getting adult learners to work together in groups. These classes were collaborative. Workers reported feeling a bond among themselves. Even management reported seeing this bond.

The project was successful overall. There were, however, a few problems. Although hese problems did not overshadow the overall success of the project, they can provide information that will make Alpena Community College's next project even stronger.

No clear target group existed. All workers at the plants were eligible for classes. This made planning and delivering courses more difficult. Some classes were more affected by this than others. The mathematics courses were more clearly defined (e.g., trigonometry) and were not as affected as the reading classes, where there were differences in the reading levels of the adult learners as well as differences in the learners' goals.

Project staff did not follow through on use of pretests and posttests. Because of difficulties in administering the tests, learner objections to the use of tests, and their belief that the tests content did not match course content, instructors discontinued using the ETS pretests and posttests. This made a clear evaluation of learner progress difficult.

Adult learners believed they needed more than the 16 hours allotted to the classes. In both questionnaires, learners indicated that they needed more time. Either more than 16 hours were needed or the course content was too ambitious for that period of time. Learners also resented spending their class time taking pretests and posttests and completing questionnaires.

Recommendations

Recruiting efforts. The successful efforts through which Alpena staff recruited both manufacturing partners and adult learners should be replicated for any new project.

Initial project planning. All parties involved in future programs should take as much time as needed before class development to plan classes. All partners should agree beforehand on what is to be taught. While job skills cannot be taught in a literacy program, job-related literacy skills can. This type of planning existed in development of courses for Fletcher and Baker and worked for the CNC classes at Besser.

Classroom success. The instructors clearly built bonds with adult learners by treating them as partners in learning. This bond should continue to be developed in future projects.

Target groups. Having clearly defined target groups is not always possible and, at times, not desirable. A clearly defined target group, however, makes the class itself more efficient since adult learners in the group are working on similar goals. A wide variety of attainment levels in one class can also be intimidating for lower attaining individuals. This was not a reported problem in this particular project, but it could be in future classes. If clearly defined target groups are impossible or undesirable, clearly defined class goals should be in place before recruitment. In that way, classes can be open to all, but those attending will have similar goals. Class goals can be changed from session to session. For example, one reading session can have a goal of "more clearly understanding what is read," while another session can have the goal of "reading memos faster and more efficiently."

Pretesting and posttesting. Efficient use of pretests and posttests can document learning. Well designed instructor-made tests can be used to measure gains. The tests can closely match course contents . The tests should be developed before the beginning of the classes and given to subjects who are not adult learners to check reliability. Test scores should be reported as raw scores, not percentages. The scores on the pretests and posttests can be statistically compared to document learning.

Class time. Many learners reported that they felt more time was necessary. If possible, class time should be increased to more than 16 hours. If this is not possible, project staff should review course content to determine if it is too ambitious for the length of class time. Pretests and posttests, as well as questionnaires and forms, can be completed outside class.

Table 1: Classes by Company

Class, Number of Students, Company, and Dates Offered

Class	Company	Number of Students	Dates Offered
Communications (English 80)	Besser	9	9/91 to 11/91
Trigonometry (Math 089)	Besser	15	9/91 to 11/91
General Math (Math 080)	Besser	6	9/91 to 11/91
Reading (Reading 081)	Besser	6	9/91 to 11/91
Communications (English 80)	Besser	8	11/91 to 12/91
General Math (Math 080)	Besser	7	11/91 to 12/91
Reading (Reading 81)	Besser	9	11/91 to 12/91
Communications (English 081)	Besser	8	1/92 to 3/92
Algebra (Math 083)	Besser	27	1/92 to 392
Reading (Reading 80)	Besser	8	1/92 to 392
General Math (Math 080)	Besser	7	4/92 to 6/92
CNC Reading	Besser	13	4/92 to 6/92
CNC Communications	Besser	6	4/92 to 6/92
CNC Math	Besser	13	4/92 to 6/92

Class	Company	Number of Students	Dates Offered
Communications (English 080)	Fletcher	22	4/92 to 6/92
Geometry	Besser	15	5/92
Reading 081	Fletcher	6	6/92 to 8/92
CNC Reading	Besser	4	8/92 to 10/92
Trigonometry (Math 89)	Besser	7	8/92 to 12/92
Communications 081	Fletcher	4	9/92 to 10/92
Communications 081	Fletcher	5	10/92 to 1/93
Reading 081	Fletcher	3	10/92 to 12/92
General Math (Math 080)	Baker	9	10/92 to 1/93
Math 080	Besser	8	10/92 to 12/92
Math 080	Baker	5	1/93

Table 2: Changes in Standardized Test Scores By Class

1. Algebra: ETS Tests of Applied Literacy Skills, Quantitative

	Number	Mean	Std. Dev.	Range
Pretest	23	9.696	1.795	6 - 12
Posttest	23	10.087	1.505	6 - 12

Paired *t* test. t = .391 (nonsignificant)

2. General Math: ETS Tests of Applied Literacy Skills, Quantitative

	Number	Mean	Std. Dev.	Range
Pretest	8	8.500	1.195	6 - 10
Posttest	8	9.125	.835	8 - 12

Paired *t* test. t = 1.667 (nonsignificant)

3. Communications: ETS Tests of Applied Literacy Skills, Prose

	Number	Mean	Std. Dev.	Range
Pretest	21	335.238	32.345	290 - 390
Posttest	21	345.238	25.616	290 - 390

Paired *t* test. t = 1.641 (nonsignificant)

4. Reading: ETS Tests of Applied Literacy Skills, Prose

	Number	Mean	Std. Dev.	Range
Pretest	17	352.353	25.132	290 - 390
Posttest	17	365.294	27.865	300 - 390

Paired *t* test. t = 1.593 (nonsignificant)

Table 3: Adult Learner Attitudes
Frequency of Response and Mean
By Class

Likert scale from 1 to 5, with 5 being the most positive response.

1. The instructor clearly communicated how the course related to your learning needs.

	Math	Communications	CNC	Reading
1	0	0	0	0
2	0	0	1	0
3	4	4	0	1
4	14	5	3	6
5	8	3	10	5
Mean	4.154	3.917	4.571	4.33

2. There was ample time for learning and practice during the course sessions.

	Math	Communications	CNC	Reading
1	1	3	0	3
2	5	2	0	4
3	5	1	3	2
4	11	2	5	2
5	4	1	6	1
Mean	3.462	2.556	4.214	2.5

3. As a student, you are satisfied with the content of the course.

	Math	Communications	CNC	Reading
1	0	0	1	1
2	0	2	0	0
3	6	4	1	27
4	14	4	4	22
5	6	3	8	2
Mean	4.000	3.615	4.286	3.33

4. The instructor was well organized and helpful.

	Math	Communications	CNC	Reading
1	0	0	1	0
2	0	0	0	0
3	3	4	0	1
4	10	3	0	2
5	13	6	13	9
Mean	4.385	3.600	4.714	4.667

5. This class helped to sharpen your problem-solving skills as related to the course content.

	Math	Communications	CNC	Reading
1	0	0	0	0
2	0	0	1	0
3	3	6	3	1
4	15	5	3	9
5	7	1	7	2
Mean	4.160	3.583	4.143	4.083

6. There is a positive attitude toward the partnership courses among the students enrolled.

	Math	Communications	CNC	Reading
1	0	0	0	0
2	0	0	1	0
3	2	1	0	3
4	13	5	2	3
5	11	7	11	6
Mean	4.346	4.462	4.643	4.250

7. There is a positive and supportive attitude toward the classes by upper management.

	Math	Communications	CNC	Reading
1	3	2	0	2
2	3	3	1	3
3	7	5	1	5
4	9	1	4	1
5	1	0	8	1
Mean	3.087	2.250	4.357	2.667

8. There is a positive and supportive attitude toward the classes by immediate supervisors.

	Math	Communications	CNC	Reading
1	2	1	1	0
2	2	2	0	4
3	7	6	1	2
4	9	4	3	3
5	6	0	9	3
Mean	3.577	3.000	4.357	3.417

9. The workplace team has been visible and friendly elements of the program.

	Math	Communications	CNC	Reading
1	0	0	1	0
2	0	0	0	0
3	3	1	0	0
4	7	3	2	2
5	16	9	9	10
Mean	4.500	4.615	4.500	4.833

10. You are satisfied with what you learned from the class.

	Math	Communications	CNC	Reading
1	0	0	1	0
2	1	1	0	0
3	6	3	1	3
4	11	3	4	6
5	8	6	8	3
Mean	4.000	4.077	4.286	4.000

11. Some of what you learned made a positive noticeable difference in your work or outside interests.

	Math	Communications	CNC	Reading
1	0	0	0	0
2	0	0	1	0
3	8	4	1	3
4	12	6	4	6
5	6	3	8	3
Mean	3.923	3.923	4.357	4.000

12. You were asked to contribute to the class often.

	Math	Communications	CNC	Reading
1	0	0	1	0
2	1	0	0	1
3	9	0	0	2
4	12	7	1	5
5	4	6	12	4
Mean	3.731	4.462	4.643	4.000

13. You were asked for suggestions about what kinds of class activities would benefit you the most.

	Math	Communications	CNC	Reading
1	0	0	1	0
2	1	0	0	0
3	6	5	0	1
4	13	4	3	6
5	6	4	10	5
Mean	3.923	3.923	4.500	4.333

14. You want to take other workplace classes in the future.

	Math	Communications	CNC	Reading
1	0	0	1	0
2	1	1	0	0
3	2	4	1	2
4	6	4	4	4
5	17	3	8	6
Mean	4.500	3.750	4.286	4.333

15. You feel more confident about your learning abilities because of the class.

	Math	Communications	CNC	Reading
1	0	0	0	0
2	0	0	0	0
3	5	2	4	2
4	15	7	2	6
5	6	4	8	4
Mean	4.038	4.154	4.286	4.167

16. The class members helped one another with course problems and shared information.

	Math	Communications	CNC	Reading
1	0	0	1	0
2	0	0	0	0
3	5	0	0	3
4	7	9	1	6
5	14	4	12	3
Mean	4.346	4.308	4.643	4.000

17. Reading, writing, oral communication, and math are appropriate choices for workplace classes.

	Math	Communications	CNC	Reading
1	0	0	1	0
2	0	0	0	0
3	5	2	0	1
4	13	6	3	9
5	8	5	10	2
Mean	4.115	4.231	4.500	4.083

18. You feel comfortable with asking your instructor to teach what you feel is important to your learning needs.

	Math	Communications	CNC	Reading
1	0	1	1	0
2	0	0	0	1
3	5	0	0	0
4	7	6	2	5
5	14	6	11	6
Mean	4.346	4.500	4.571	4.333

19. This kind of program is well received by the community (family, friends, etc.).

	Math	Communications	CNC	Reading
1	0	0	0	0
2	0	0	0	0
3	3	2	1	3
4	11	5	2	5
5	10	4	11	3
Mean	4.292	4.182	4.714	4.000

20. You are aware of the learning gains you made through routine assessment of your portfolio.

	Math	Communications	CNC	Reading
1	0	0	0	1
2	0	0	1	0
3	7	2	2	5
4	11	9	7	4
5	8	1	4	2
Mean	4.038	3.917	4.000	3.500

21. Learning for you means experimenting or "trying out" new information in a way that works best for you.

	Math	Communications	CNC	Reading
1	0	0	0	0
2	0	1	1	0
3	5	2	1	1
4	12	3	7	6
5	8	6	5	5
Mean	4.120	3.500	4.143	4.333

Table 4: Open-Ended Questionnaire
Summary of Responses

Communications

1. In what way has this course helped you on the job?

Response	Number Responding
More tolerant, better understanding of others	5
Better at organizing ideas before speaking	4
Better at communicating ideas to fellow employees	3
Better at taking time to listen and explain	2
More comfortable talking	1
Better listener	1
Easier to convey ideas to supervisors	1
Able to express point of view when problems occur	1

2. In what ways has this course helped you on a personal basis?

Response	Number Responding
More self confidence	7
Helped to understand other people	3
Communicate with others better	3
Learned to listen	1
Thinks before speaking	1
Is being listened to now	1

3. How could this course be improved?

Response	Number Responding
Longer, more time	4
Fewer, longer classes	2
Add instruction on using an answering machine	2
Fewer tests	1
Ask what the class wants to work on	1
More work on punctuation	1
No improvement needed	1
Have a continuation course	1
Add telephone communications	1
Add safety communications	1
Have material determined ahead of time	1

4. Did we, as an instructional team, clearly communicate what we expected of the students in the course? What could we do to improve that?

Response	Number Responding
Yes. No suggestions	7
Add a class outline	3
Yes. Ask students what they want to learn	1
Yes. You listened and drafted curriculum around our needs	1
Yes. More specific information needed.	1

5. What are some ways that we could use better or more appropriate materials?

Response	Number Responding
Use of computers	2
Doing a good job now ; none.	2
Video camera on the whole group as a class	1
More handouts	1
Use of current affairs	1

6. Other comments/suggestions.

Response	Number Responding
Good instructor	3
Need to have more time	2
Helpful class	1
Would like to help others when new class begins	1
Challenging class-made me think	1
More feedback from upper management needed	1
An advanced class needed	1
Worker morale low and that affected class	1

MATHEMATICS

1. In what way has this class helped you on the job?

Response	Number Responding
Learned to use calculator	7
More efficient, faster at figuring	5
Not used	5
More confident	4
Work better with angles	3
Use of formulas	2
Able to figure out problems without going to engineering	2
Able to add and subtract using fractions and decimals	1
Understand measurements better	1
Better at trig	1
Better at blue prints	1
Better at computer use	1
Better at thinking	1

2. In what ways has this course helped you on a personal basis?

Response	Number Responding
More self-confidence	11
Able to use calculator	2
Helped in another class	2
Knowing I can still learn from classes	2
In carpentry, construction	2
Able to use metrics	1
Helped study habits	1
Learning to deal with problems more clearly	1
Learning trig	1
Able to deal with angles and set up machinery	1
Able to use formulas	1
Rounding	1
Able to help children with homework	1
More comfortable around computers	1

3. How could this course be improved?

Response	Number Responding
Fewer forms	13
More time	12
No break in middle for computer class	4
Just right the way it is	3
Longer classes, fewer meetings	2
More tech math	1
Time and place to go for extra help	1
Better classroom	1

4. Did we, as an instructional team, clearly communicate what we expected of the students in the course? What could we do to improve that?

Response	Number Responding
Yes. No suggestions	20
More time	4
Yes. Excellent instruction	4
Yes. Fewer forms	3
Change title to Workplace Math and Scientific Calculator Skills	1
Not sure where I stood in class	1

5. What are some ways that we could use better or more appropriate materials?

Response	Number Responding
More hand-outs, study aids, books	3
None	3
More work on calculators	3
More time	2
Better classroom	2
More challenging	1
Use more computers	1

6. Other comments/suggestions

Responses	Number Responding
More time needed	4
Less time filling out forms	3
Enjoyed class	3
Would like to be able to apply class for college credit	1

Reading

1. In what way has this course helped you on the job?

Response	Number Responding
Can read faster	5
Better understanding of what is read	2
More confidence	1
Can separate important information from unimportant information when reading	1
Added new vocabulary words	1

2. In what ways has this course helped you on a personal basis.

Response	Number Responding
Can read faster	4
Understand do-it-yourself books better	1
Read more	1
Increased reading comprehension	1

3. How could the course be improved?

Response	Number Responding
More time	3
Less time on form completion	2
More time on speed reading	1
Split the class with half on speed, half on comprehension	1
More reading out loud	1
Keep instructional team in place	1

4. Did we, as an instructional team, clearly communicate what we expected of the students in the course? What could we do to improve that?

Response	Number Responding
Yes. No suggestions	4
Give students an outline	2
Yes. Continue classes as they are	1

5. What are some ways that we could use better or more appropriate materials?

Responses	Number Responding
More speed reading drills	1
More intensity on work-related materials	1

6. Other comments/suggestions

Responses	Number Responding
More time	1
Better classroom with bathroom	1
Good instructor	1

THE ALPENA PROJECT: LESSONS IN WORKPLACE EDUCATION

Dr. Donald Newport

(President of
Alpena Community College)

Chuck Wiesen

(Director of the Center for
Human and Economic Resource
Development)

Dr. Curt Davis

(Dean of Student Services
and Instruction)

Rita Macy

(Assistant Dean and
Workplace Partnership
Project Manager)

Janet Fulton

(WPP Reading
Instructor)

Kendall Sumerix

(WPP Math
Instructor)

Don MacMaster

(WPP Communications
Instructor)

Ann Schultz

(WPP Secretary)

United States Department of Education

Alpena Community College

Besser Co.

Penn State

Fletcher Paper Co.

Thunder Bay Labor Council

INTRODUCTION

"It takes vision to see down the road. That's what this thing is all about."

Gordon Udell
Besser Company
Shop Steward

Twenty months down the road, we find that our workplace education project defies easy categorization. Rated exemplary in curriculum design and instruction by outside evaluators from the Penn State Institute for the Study of Adult Literacy, our project has also been the subject of a national PBS documentary on workplace literacy narrated by former NBC newsman Edwin Newman. A handful of students say that these classes changed their lives. Many others have said that their time in class was well-spent. For the most part, our business partners have been pleased with our performance. But the further we go, the more work we see that needs to be done. An effective workplace education program is, as one ACC facultyperson astutely noted, "A different animal," and learning its ways can be a daunting process.

As the recent presidential campaign indicated, what we are trying to do has reached the highest levels of political dialogue. All the candidates were familiar enough with the topic to boil it down to the slick-sounding aphorisms that we deal in everyday - "We need to upgrade basic skills and retrain our workforce in order to deal effectively with changing technology and the competitive global marketplace." That sort of thing. But lip service won't do. Not on our level, anyway. The downsizing of the American workforce has a human face. We see the shaken survivors and the future victims of this downsizing in class every day and they demand more from us than a mastery of jargon. They want us to make it real, to teach them something they can use. That was our challenge in the beginning, it continues to be our challenge today, and will remain our challenge in the future: Make it real.

The purpose of this book is to help promote workplace education. We want to share our experience so that others might start further along the learning curve than we did. Although every workplace education project is different, successful projects have common features: total management buy-in; ongoing communication between business and the education provider; an emphasis on planning; professional staff; and pertinent curriculum. A skeletal outline of our project is listed on the following page.

ABSTRACT

Funded by a quarter-million dollar federal demonstration grant from the United States Department of Education, our Workplace Partnership Project delivered individualized instruction to 212 students (125 unduplicated) in the content areas of math, reading improvement, and communications. These students were employees of three local companies: Besser Company, an international manufacturer of concrete blockmaking equipment with approximately 400 employees; Fletcher Paper Company, a specialty paper manufacturer with about 225 employees; and Baker Enterprises, a sheet metal manufacturer with about 80 employees.

A broad demographic profile of the students is as follows: White, male, English-speaking, blue-collar, 25-55 years old, 5-30 years seniority, union-affiliated, head of primarily single-income households, high school graduate. Hobbies include hunting, fishing, and working in the woods.

Each class met for sixteen hours. We offered general math, algebra and trigonometry with shop applications, reading improvement A & B, a pair of communications courses, one focusing on writing improvement and the other on oral communications skills and problem-solving, plus CNC math, CNC reading, and a CNC train the trainer class. The CNC classes focused specifically on improving basic skills as they related to Computer Numerically Controlled (CNC) equipment - the new breed of machines run by computer that have replaced many shop floor functions that used to belong to skilled machinists.

We used the ETS and TABE for pre and post standardized tests and devised our own informal pre and post tests to measure student improvement. We charted pre and post attitudes on a Likeart scale, plus we used portfolio assessment extensively, even in the math classes. Each instructor kept a journal entry for every class session taught, including a personal reflection at the end of every course. Instructors observed their peers at least once during each round of classes and peer observations forms were filled out and returned to the instructors. The project director also visited the classroom at least once during each round of classes, compiled field notes, then shared them with the instructor. An administrative evaluation was also part of the instructor's responsibilities for each round of classes.

CHAPTER ONE

History

"Welcome to Alpena - A Warm and Friendly Port"

- a sign on the outskirts of town

Twenty-two years (check) after his death, The Chamber of Commerce (check) voted Jesse Besser Alpena's Man of the Century. This visionary machinist and manufacturer was Alpena's Henry Ford. Besser Company, the sophisticated job shop he formed to manufacture his most famous invention, the Bescopac, the first machine to mass-produce concrete blocks, is still the largest employer in the area. Alpena Community College, next door to Besser Company, holds many of its physical science classes in the Besser Tech building. Further down Johnson Street is Jesse Besser Museum. Across the open field in back of the museum is Besser Junior High School. A major backer of the new construction at Alpena Community College is the Besser Foundation, by far the largest philanthropic organization in northeast Michigan.

But Besser's influence goes deeper, to the heart of what Alpena once was and struggles to sustain. The high seniority workers at Besser Company tell a similar story, about how late in his life you could still find Jesse Besser on the shop floor, sometimes late at night by himself, gazing intently at the inner workings of one of his machines as he plotted some intricate refinement. The tradition that Besser represented - a man's man who loved the outdoors and made his mark working with his hands - is still highly appealing to many who choose to live in and around Alpena. The problem is, the rest of the world is changing.

The North Side

A remote port city just north of the 45th parallel on Lake Huron, Alpena is built around the mouth of the Thunder Bay River on a vast table of limestone. This natural resource, a key component in the production of cement, has been the economic backbone of the entire region for decades. From one of the world's largest open limestone quarries in Rogers City, thirty five miles north of Alpena, huge lake freighters bring raw limestone to the cement plant in Alpena where it is fired in kilns, processed into klinker, ground into dry cement powder, and loaded in bulk into the holds of freighter to be delivered to ports across the Great Lakes.

A strong union town with a ready supply of skilled, blue-collar labor, Alpena thrived during the post-depression era. Four employers provided nearly half the jobs in town. Besser Company and the cement plant, owned by National Gypsum, were the two largest employers followed by Fletcher Paper, a family-owned paper manufacturer, and Abitibi-Price Inc., an international particle board manufacturer. Because all four companies were clustered across the river on the north side of town, and because they were five counties removed from a manufacturing base of comparable might, the north side developed a distinctive personality - proud, tough, resistant to change.

The Changing Workplace

But change came slowly, like frost loosening a stone foundation. The first to give way was the cement plant, owned by National Gypsum Company. Facing declining profits all through the early to mid-seventies and large losses by the mid-80's, management and labor locked into a bitter contract dispute that lasted two years, deeply dividing the community. Unable to resolve the impasse, National Gypsum sold the cement plant to Lafarge Corporation in January '87, which initiated an ambitious $70 million plan to modernize the 85-year-old plant. Twenty years ago, for example, part of the yard crew's job was to plow dust from the roof of the No. 2 kiln room; so much dust would blow out of the stacks and plume down on the buildings, a three-man crew would have to go up and do this job twice a day.

"Thirty years ago," a longtime employee said, "everybody owned a cement plant special. They were all the same color - gray," he said, adding that everyone also had a ball of steel wool to clean off the windshield before driving home each day. There were three dust collectors for 26 kilns back then; Lafarge has nearly 70 in place now."

But modernization has been a complicated package for Lafarge to sell to the public. At its peak, National Gypsum employed more than 600 workers at the cement plant. Lafarge currently has less than 200 and the company is producing more cement than Gypsum did with three times as many workers. Not only has the workforce been considerably downsized, the nature of the work has changed. It demands a higher degree of technical competence than is available locally, so a large share of the business goes to out-of-town subcontractors. To cut the high energy costs associated with the production of cement, Lafarge now burns selected hazardous wastes in its kilns, a highly controversial issue in the community.

Even the face of the plant is rapidly changing, one more reminder that the old way is obsolete. The No. 2 kiln room building, for example, once the heart of the cement-making operation and site of the development of the airslide conveyor system, an Alpena invention, was recently demolished to make way for new improvements. Locally, Lafarge has become a lightning rod, a symbol of change, and perception of the company has as much to do with how people feel about change in general as it does with specific changes Lafarge has made and continues making.

Fletcher Paper Company

In August '87 Fletcher Paper Company was about to shut its doors. A prominent family-owned business for nearly 100 years, Fletcher Paper Company had been trying to compete against giant mass-paper producers such as Mead and Georgia-Pacific but was losing the battle. The plant was too old, production too slow, and the product was not consistently good enough. The company was going under. Forced to change, the board of directors brought in an aggressive new management team that shifted the focus to producing speciality papers such as the contact paper used in EKG machines, a tighter market with a much higher emphasis on speed, quality, service, and specialized coatings. The company instituted a team-concept management policy, computerized the papermaking process, and is now hiring again.

"What gets rejected now, we used to send out the door on a consistent basis," one longtime production employee said. "Where papermaking used to be an art - you'd listen to the machine and could tell by the sound if something was wrong - now with these computers all you do is punch in a number and it controls everything." Like a man who has been convinced over time, he admits, "It's become a science now. And we're producing much better paper."

Besser Company

Even Besser Company, traditionally the most stable of the northside manufacturers, finds itself being undercut by the tides of change. A company with $50 million in sales and 500 employees during good times, Besser has been hurt by the recession and regional competition for service parts; both factors combined have produced sluggish sales and a large number of layoffs.

Despite the recession, Besser management has proceeded with efforts to modernize its design and manufacturing processes. A plantwide integrated computer system went on-line in the fall of '91. Computer aided design (CAD) is now routine in engineering upstairs. And a growing number of the machining operations on the shop floor are now done on numerically-controlled or computer numerically-controlled machines.

Operators on these new machines need to know at least as much about programming tape and computer language as they do about tolerances, speeds and feeds, and x, y, z coordinate system - concerns of the traditional machinist. The new Mazak, for example, is totally computerized. A $750,000, state-of-the-art machine, the Mazak can perform several milling operations simultaneously and can perform them faster and more accurately than a crew of the finest machinists. A laser controlled by a computer does the cutting; the operator stands off to the side next to a computer display panel and is primarily responsible for making sure the machine is set up properly and fed the right instructions.

A major problem Besser management now faces is how to encourage machinists who have proven competence on a traditional machine to learn the new technology that will make their old skills obsolete.

"Basically you can't ever stop learning things. You may not be able to teach an old dog new tricks, but you'll also be passed by with technology and everything, day-to-day life. You may learn a new method to doing something. It may be easier or it may be something you never thought about. There's a lot to be learned from other people, too.

Jim Kucharek
CNC Operator
Besser Company

Alpena Community College

Backed by forty years experience as a small rural community college working in a highly industrialized environment with a unionized workforce, ACC was well-positioned to offer assistance as an agent of change.

The idea to pursue some kind of basic skills workplace education program arose during a workforce assessment session at Besser Company. Based on results from asset testing, a normed standardized test the college uses to place incoming students, it became clear there was a gap between the level of technology needed to remain competitive and the basic skill levels of the workers.

Administrators at the college began looking into how that gap might be closed. When they found the literacy grant announcement from the United States Department of Education, they put together a team to put together a grant proposal. Partners in the project would be ACC, Besser Company and Thunder Bay Labor Council, an umbrella group representing all union locals, with Penn State's Center for the Study of Adult Literacy written into the grant as outside evaluators. Stressing the quality and commitment of the partnerships and the rural, remote geography of the region, the Alpena Project was funded as a federal demonstration grant with a timeline of eighteen months and a mandate to develop a model for improving basis skills in the workplace.

Timeline Estimates
for a ____-hour Workplace Literacy Program*

	Activity	Staff	Staff Days
Week 1	*Identify critical job tasks:*	________	________
	Notify participants;	________	________
	Plan, schedule, conduct meeting.	________	________
Week 2	*Evaluate outcomes:*	________	________
	1. Notify participants:	________	________
	Plan, schedule, conduct meeting to set	________	________
	goals.	________	________
	2. Create data collection instruments.	________	________
Week 3	*Conduct Literacy task Analyses:*	________	________
	Schedule observations;	________	________
	Conduct observations and gather	________	________
	materials;	________	________
	Review and document notes.	________	________
Week 4-6			
	Plan and develop curriculum:	________	________
	1. Form and notify advisory panel;	________	________
	Plan, schedule, conduct meeting.	________	________
	2. Develop instructional unit plan.	________	________
Week			
	Write curriculum materials:	________	________
	Write prototype lessons;	________	________
	Design needs assessment instrument.	________	________
Week			
	Conduct needs assessment:	________	________
	Schedule assessment; administer, score,	________	________
	and interpert cloze tests to	________	________
	employees.	________	________
	Write curriculum materials:	________	________
Week	Ongoing materials development.	________	________
	Schedule recruitment and instruction:	________	________
	Meet to set goals, make plans;	________	________
	Hold instructor training session;	________	________
	Make presentation to employees.	________	________
	Write curriculum materials:	________	________
Week	Ongoing materials development.	________	________
	Deliver instruction:	________	________
	2-hour classes twice per week.	________	________
	Evaluate outcomes:	________	________
	Conduct class observations; interviews,	________	________
Week	and surveys.	________	________
	Evaluate outcomes:	________	________
	Analyze and interpret data:	________	________
	Write report.	________	________

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* From David Moore, Community College of Aurora

CHAPTER TWO

Start-up

"I think it's important not to generalize too much about the students and what they'll want you to teach. I think the person who does the planning for the project needs to be right in there talking to the employees, the employers, the community, and be very visible right from the start.

"I think you need to be well-organized, to have your timeline down even though you might not be able to stick to it, and at least have some conception of where you're going and why. I think it's really important to have a leader at the head of the pack who knows their business and who knows something about working with adults. They need to be able to provide answers to everyone who asks questions about the project.

"I think the worst thing you can do in a start-up project is to be ambiguous. Because with ambiguity comes mistrust. And it's real hard after you've laid that foundation of mistrust to build it back up again."

Rita Macy
WPP
Project Director

A key point to consider is that everyone involved in the start-up process is going to have a different perspective on how the project should go. Business will talk about competitiveness and the need for their workforce to acquire greater skills in order to increase productivity. Labor will emphasize job security. Education will talk about customizing coursework and devising delivery systems that can be plugged in at multiple worksites. If the project is grant-funded, the funding agency will have its own agenda and will demand accountability in areas the other partners may perceive as beside the point. It's a complicated mix. The key player is the project manager. There has to be someone in charge who can not only convey a vision for the project based on knowledge and experience, but who has the ability to mediate the conflicts that inevitably arise between partners and can sort through these differences so that nobody feels left out. In short, it takes a good administrator.

Assessment

Step one in the start-up process is assessment. The assessment process is comparable to a sprinter coming out of the starting blocks. A good start gets the project off and running on solid ground; a poor start and you're playing catch-up the rest of the way. We started slowly and it hurt us. One area where we could've been stronger was in getting access to the students and hearing from a cross-section of each business partner what they needed us to teach. We did not push hard enough for full management buy-in.

Assessment means looking in a systematic way at the needs of the workforce. It takes planning and focus to figure out what to look for, how it's going to be gathered, who's going to be included in the gathering process, and what the data will be used for. The best place to start is by forming an advisory team for each business made up of human resource personnel, frontline supervisors, operations and production people, union representatives and employees that have credibility in the plant. The advisory group must represent a cross-section of the company to be effective or it can create more problems than it solves.

The role of the advisory group in the assessment process is to give the education provider honest feedback on what needs to be taught, what's going on inside the plant that might factor into the success or failure of the project, and how skeletons in the closet might be avoided. It's extremely important that the education provider encourage business to come up with some realistic expectations for what can be accomplished and how it can be done. No detail is too small for consideration by the advisory group, especially during start-up, nor should the education provider make unilaterial decisions without consulting the advisory group. The advisory group is a resource that should be nurtured with considerable care; its members have a lot of credibility on the line. If treated poorly or made to somehow look bad, support for the project all through the company will erode like loose topsoil.

The second step in the assessment process is creating a survey for distribution throughout the company. The purpose of the survey is to get potential students to put down on paper what classes they would like taught. The advisory group should have input on the survey and the education provider should follow its recommendations. If consulted and listened to, the advisory team will help power the process of getting workers to complete the surveys and hand them in, not an insignificant point. The education provider should then score the surveys, summarize the findings, and return to the advisory team with an outline for a course of action.

The third step in the assessment process is observing students/employees on the job. Walk up and down the line. Ask questions. Look for anecdotal material as well as task analysis data - i.e.: what written, computational and reading skills are required to do these jobs? What kinds of problem-solving and critical thinking issues are required? Keep an eye out for manuals and other work-related materials that could be incorporated into the curriculum.

The last step in the assessment process is sitting down and interviewing each student for ten or fifteen minutes before the first day of class. The interview should be informal and non-threatening and should focus on specific information such as educational background, job history, and future goals. The interview should set the stage for an interactive classroom experience. In other words, don't grill the worker. Let him (or her) ask you questions. It's important to remember that this interview will not only be your first impression of the student, it will be his first impression of you. Because most workplace students are adults who never went to college, they will be hypersensitive to condescension. Don't talk down to them or use a lot of education-talk to describe what you'll be doing in class. Be yourself. Treat them the way you wish you'd been treated on your first day away at college and you'll be all set.

A sample survey form and a sample interview form are reproduced on the following pages.

Are you interested in participating in an education program? Yes ______ No ______

If yes, please help us by filling in the information below.

In order to assist us in developing an effective education program at Samsonite,*we want to know which of the following skills you would like to improve. Please indicate in the space to the right of each item how important improving your skills is, in each area, using the following four-point scale and circling the appropriate number:

4= essential
3= important
2= useful, but not important
1= not important or not applicable

Learning to Learn	1	2	3	4
Communication Skills	1	2	3	4
Career/Personal Development	1	2	3	4
Problem Solving	1	2	3	4
Mathematics	1	2	3	4
Writing	1	2	3	4
Reading	1	2	3	4
English as a Second Language	1	2	3	4
GED preparation	1	2	3	4
Machine operation	1	2	3	4
Cloth	1	2	3	4
Plastics	1	2	3	4
Set up/reduction	1	2	3	4
Safety procedures	1	2	3	4
Safety data	1	2	3	4
Hazardous materials	1	2	3	4
Assembly	1	2	3	4
Hardware	1	2	3	4
Warehousing	1	2	3	4
Total Quality Management	1	2	3	4

Other: ____

If you choose to participate in this program,would you prefer to attend before the start of your shift or after the end of your shift? Before _____ After _____

What shift are you working on, at present? ________________

If you choose to participate in this program, do you prefer to attend classes: (Check one.)
(a) at your worksite? ________
(b) away from the worksite? ________
(c) have no preferences? ________

Is there anything else you would like to say?

Thank you for your help.

*From David Moore
Community College of Aurora
Denver, Colorado

WORKPLACE PARTNERSHIP QUESTIONAIRE:

Introduce ourselves. Don't forget to mention confidentiality.

NAME: ________________

POSITION: ________________

SENIORITY: ______________________

EDUCATIONAL BACKGROUND:

(1) How far did you go in school?

(2) What's the last math class you took? Reading? Writing?

(3) What's your best subject?

(4) What would you like to improve in?

JOB BACKGROUND:

(1) How does your job fit into the company?

(2) What skills do you need to do your job?

(3) Do you use computers on the job?

(4) How do you feel about them?

(5) Does your job require writing? Reading? Math?

(6) How were you trained to do your job?

GENERAL INFORMATION:

(1) Where do you see yourself five years down the road?

(2) What could we offer that would help you reach that goal?

(3) Any hobbies or special interests?

(4) Any questions or comments?

INDIVIDUAL EDUCATION PLAN
WORKPLACE PARTNERSHIP PROJECT

Name:
Course:
Date:
Teacher:

1. **Brief description by student of his/her job.**

2. **Student strengths:**

   a.

   b.

   c.

3. **Assessment scores:**
   Formal (test name):
   Informal (IRI description):

4. **Student goals for the course of study: (List courses and associated goals)**

   a.

   b.

   c.

   d.

5. **How do you hope the course will help you at work? Personally?**

6. **How she/he hopes to achieve goals of study. Please mention materials, topics of study you'd like to pursue, etc.**

   a.

   b.

   c.

7. **Other observations (student or teacher):**

I understand this plan and agree to cooperate within the project to achieve my goals

Student:__________________ Teacher:____________________

A Laundry List of Start-Up Concerns

(1) Standardized assessment tests - students may feel that test scores could be used against them by the company and so will hesitate to sign up.

(2) Release time - who pays for the time students spend in class? Company or student?

(3) Curriculum - who are your students and what will they want you to teach? How do you deal with the wide variety of skill levels students bring to the workplace classroom?

(4) Scheduling - how do you accommodate workers on different shifts?

(5) Staffing - where do you find instructors experienced at working with adults and developing curriculum with the flexibility to arrange their schedules to suit the needs of business?

(6) Literacy - how do you get beyond the stigma that literacy conveys?

(7) Trust - how do you build trust while avoiding the mistakes that will squander it completely?

(8) Focus - how do you sell business partners on the idea of a long-term investment in basic skills education - learning how to learn - when a quick-fix training approach solves more immediate needs.

CHAPTER THREE

The Workplace Classroom

"You take a guy forty-five or fifty-five, he wants to feel comfortable. He doesn't want to go over to that college and compete with all these gung-ho kids. He wants to feel comfortable and not feel ashamed of himself. When an older guy goes over to the college, the first thing he feels is very inferior. You don't want that to happen to him. You want him to be comfortable because then he's going to reach out and try and grasp something out of it."

- Gordon Udell
Shop steward
Besser Company

The workplace classroom brings together a community of learners with unique needs. Adults in the workplace sign up for classes for a variety of reasons, but what they have in common is that they are adults with adult responsibilities, most have families and mortgages and stressful fulltime jobs, and they are in the classroom for a reason. They are non-traditional students who don't have the time or the inclination, for the most part, to pursue a degree. They have attained their position based on merit or seniority and college credit has little or no impact on their professional or personal lives. It's very characteristic of adults in workplace classes to be honest learners, open to new ideas, and highly motivated to improve. They are mainly interested in getting something specific out of their time in class, such as the opportunity to practice public speaking or learning how to run a personal computer. Below are six points we found that helped create a positive learning environment in a workplace classroom.

(1) Adult learners in the workplace learn best from each other.

(2) Adult learners should be encouraged to monitor their own progress.

(3) The instructor should let the adult learner teach whenever possible.

(4) Adult learners should be encouraged to choose what they want to learn and how they want to work on learning it.

(5) The instructor is a peer of the adult learner and should respect and use the skills and prior knowledge that the adult learner brings to the workplace classroom.

(6) Instruction should be adapted to build upon the strengths of each adult learner.

Instructors

Workplace instructors need to be flexible, responsive and creative. The lecture format does not appeal to most adult learners, nor does theory-based instruction. They prefer group discussion on issues of importance to their personal or professional lives, pertinent problem-solving models, and plenty of two-way communication.

A key characteristic of adult learners is that they want to work on what they want to work on, not what the instructor wants to teach, so the instructor should not rush to impose a syllabus on the group or feel too tied to an outline. A non-traditional approach works best. Ask questions. Let the students have some control over the curriculum. Give them a sense of ownership. Emphasize to the students that the class is for them, for their benefit, and that you are there primarily as a resource person and facilitator.

Ultimately, adult learners will judge the success or failure of a workplace program on whether or not at least some of their individual goals were met. If they come away with something meaningful from the time they spent in class, they will pass that on to their co-workers. If they don't, the project may be quickly doomed by word of mouth.

Adminstrators and instructors need to constantly remind themselves of this point: the role of the instructor is to be responsive to students.

Curriculum

Specifics will be in short supply during start-up, especially if the assessment process has been less than successful. Chances are you won't know enough about what your students do, what skills they require to do what they do, what they expect from you, or what they expect from your class. Consequently, it will be hard to devise a curriculum, to know where to start, what to cover, and where to finish - a thoroughly unsettling situation to any sensible instructor.

Classes with no set curriculum are not only challenging for the instructors responsible for teaching them, but to education administrators as well. If the classes are offered for credit, then the faculty chairpersons in that content area will want to get involved to ensure that the good name of the department will not be compromised by shoddy design and lackluster effort. The curriculum committee will want to know precisely what's going to be taught in order to sign off on the classes. Even the number assigned to workplace classes can be fodder for further sound and fury. Instituting a workplace education project within a traditional community college framework can be like the first time a child gets its finger pinched in a door - a painful learning experience.

It doesn't work for the education provider to say to the business partner: "We'll offer the class at eight in the morning. It meets at our place for the next sixteen weeks." To make a workplace education project work, the education provider has to work around the schedule of the business partner, not the other way around. Business does not run according to semesters, or on a schedule that calls fifty minutes an hour. When they're ready, they want a class. Immediately. This is a strain on the system of the education provider and needs to addressed before it becomes a chronic problem.

The curriculum issue - what's going to be taught - will also concern company management, especially if the assessment process has failed to produce sufficient involvement on their part. Management will not be inclined to give instructors access to students and workplace materials until they see some structure, while the instructional team will argue that they cannot begin to structure a workable program until they have access to the students. If this impasse lingers, expect management to angle away from basic skills improvement - learning how to learn - toward a more company-specific training-oriented approach. In other words, if the company needs lathe operators, they'll want someone to teach lathe operations rather than the basic skills in reading and math that would enable a worker to be a better learner. Training provides an immediate benefit that can be traced to the bottom line; basic skills education does not.

Resorting to canned remedial or tech prep material from the college course catalogue will be especially tempting during this trying time, but there's no getting around the need to develop curriculum as you go, based on the feedback you get from the students and the materials you can gather from the workplace. Canned coursework is absolutely the wrong approach.

Selling the Project

"Don't call it literacy," the union rep told us at our first partnership meeting. "That conveys a negative." Unfortunately, he was right. In most contexts, literacy has become a blanket pejorative that means remedial material for academic misfits. Advertising a workplace education program as "workplace literacy" won't appeal to anyone, least of all the people who need it most. "Don't you know that already?" from a boss or a peer will effectively deter most in management. Blue collar laborers working jobs that require a high degree of technical competence often perceive "literacy" to mean grammar and textbooks. "We're skilled labor," a union rep told us at the same meeting. "We don't need letter writing." The third group turned off by "literacy" are low-skilled workers whose careers have been stifled by an inability to read or write. "Literacy" to this group is synonymous with failure. Advertising your workplace education program with the word literacy in it is not wise selling strategy at any time, but especially during start-up.

Baker

The key component to a successful workplace education program, as we mentioned earlier, is total management involvement. If management feels that they were sold a bill of goods and that promises were made that were not kept, or if management feels their expectations for the project were not met, the project will die there, no matter how enthused the workers are about it.

Late in our project, we partnered with Baker Enterprises, a subsidiary of Besser Company. A small non-union sheet metal manufacturer, Baker had a specific need for shop math. When our math instructor contacted the president of the company about starting workplace classes on site, the first thing the president wanted to know before making any commitment was what the instructor planned to teach. They sat down and went over the curriculum in detail, planning the class together. Once the objectives for the class were nailed down, the company president knew going in what he could reasonably expect to get out of it - he had some idea what skills his employees would have when they finished the one-credit course. And if his employees had not mastered at least some of these skills, he could hold the instructor accountable.

As the math instructor pointed out to us at a team meeting later, this is the ideal arrangement. Accountability is not a bad thing. Far from it. It is the built-in structure that many workplace classes need. Most problems between company management and the education provider arise when neither has a clear expectation for what the students are going to be taught - it's all left kind of vague.

The president of Baker Enterprises examined our package of classes like a customer. He knew what he wanted and only after he was satisfied that he could get it did he commit release time money. In fact, in order to make their study of right angle trig more real, he had a couple employees fabricate steel to portray the geometric shapes and concepts they would be talking about in class. When the business partner buys in to this extent, the framework is set for a practical and successful project.

CHAPTER FOUR

A Theoretical Framework

"Sometimes the most practical tool is good theory."

- Anon.

We tried to avoid getting bogged down in theory. Finding out what worked was our main focus; figuring out why and giving it a name were lesser considerations. Because we relied mainly on empirical data, the theoretical base of our project never seemed set in stone. As the project evolved, so did our understanding. It was often the case that what we thought we knew at one point revealed a different perception later. Rena Soifer's "The Complete Theory to Practice Handbook of Adult Literacy," helped us out considerably. "Mosaic," the newsletter of Penn State's Institute for the Study of Adult Literacy was also a valuable resource. The research that worked for us emphasized constructivism, whole language, lifelong learning and portfolio assessment.

Constructivism

The idea behind constructivism is to build curriculum and base lessons on what students know - and need to know - rather than focusing on remediating all the gaps they may have in their overall education. Drawing upon what students know serves two principal functions: (1) it gives them a sense for how much of value they really do know, which bolsters their confidence; and (2) along the lines of a Montessori approach, it puts the responsibility for learning back on them, which is where it belongs.

Students who sign up for workplace education classes often had spotty records in school. Some are legitimately low-skilled; learning has always been hard for them. But many others are bright people who simply failed to connect with school. They saw no relevance in what high school had to offer them and so they developed their own system of self-education. The last thing they want to do with their time is go over all the old material they failed to get before. They want to build on what they know. That's constructivism as we defined it.

Whole Language

The whole language approach emphasizes process over product. It is about sharing ideas and creative solutions to real-life problems through writing and discussion. Memorization and rote instruction are discouraged. The instructor should be a peer and a facilitator rather than an authority figure with all the answers.

Whole language theory also is based upon content in context. What's done in class must be relevant and interesting and apply to either the professional or personal lives of the student. It is a way of looking at the learning process that includes but is not restricted to the workplace, incorporating language and issues that exist outside the classroom.

Lifelong Learning

Lifelong learning promotes an attitude of persistent inquiry. Learning is not confined to the classroom until graduation or a certain competency is attained; lifelong learning theorists believe that it lasts a lifetime. Adults learn best when there is meaningful interaction among themselves and between themselves and the instructor. A writing class, for example, should focus less on grammar and parts of speech and more on generating ideas and practicing writing. Asking adults to read their work to the rest of the group can be a productive activity. The instructor should come to class prepared to let the group decide which direction they feel is most meaningful for them to pursue, then let them pursue it in a structured way that leads toward pertinent objectives. A guiding principle of lifelong learning is giving adults power over the curriculum while focusing them on self-evaluation. A good way for an instructor to model lifelong learning is to ask questions he doesn't already know the answer to. Lifelong learning is hollow talk if the instructor is unwilling to say, "I don't know."

Five strategies that promote lifelong learning in workplace education projects:

(1) Meet the needs of the learner:

- make sure that learners see that the program is relevant to their needs and goals and that learners feel comfortable as they participate in the program.

(2) Develop support for lifelong learning:

- use available resources and make them work together to support adult learners.

(3) Accomodate learner differences in the program:

- understand and respond to the differences among learners.

(4) Develop higher order skills:

- help learners see how they use thinking and problem solving skills and help strengthen their abilities to use these skills in new situations.

(5) Enable learners to use all language processes in their lives:

- Help adults use reading, writing, speaking and listening to solve problems, reach goals, carry out daily activities.

- PROJECT LIFELONG LEARNING
Institute for the Study of Adult Literacy
Penn State University

Portfolio Assessment

Portfolio assessment allows students to monitor their own progress by keeping their work collected and accessible. Part of the portfolio process should be an emphasis on journal writing, in which students address a wide range of issues related to the classroom and the effect class is having on their work and personal lives. The idea behind journal writing is not to get students to write what they think you want to hear but to engage them in thinking about self-improvement or how they might arrange the class differently if they were the instructor. Though journals are not as quantifiable a measure of student improvement as normed, standardized tests, adult learners tend to like journals better and demonstrate the type of critical thinking skills in them that leads to an attitude more consistent with lifelong learning. Hardcore stats people sometimes downgrade qualitative data such as portfolios as "warm-fuzzies," but there is no more reliable indicator of student achievement than what they feel they got out of their time in class, especially if they can articulate how it applies to their personal or professional lives.

CHAPTER FIVE

Shop Voices

"The real benefits of this program are the unmeasurable ones."

- Joe Gentry
Human Resources Manager
Rogers City Industries

Students sign up for workplace classes for a variety of reasons. Some factor in work concerns; others do it for personal reasons, out of a desire to better themselves. The case studies in this chapter - all from communications classes - are designed to illustrate the kind of motivations adults bring to workplace classes as well as the kind of gains they take from them. I've changed the names but not their stories.

Blue

Occasionally a worker shows up that has been so battered by life or stressed out and embittered by work that a workplace class literally represents a last chance to work through their problems and turn things around. The most pressing issue in such cases is self-esteem, not where the comma goes.

Blue came to class the first day looking wild and rumpled, his hair mussed and greasy, coat and bootlaces undone, incapable of clarifying even the simplest expression. He was like a calf caught on the wrong side of the fence - trapped, wild-eyed, totally reactive, a fortyish man with a palpable sense of dread about him.

"What do you think of yourself as a communicator?" I asked him on the first day of class.

"No good," Blue replied, lighting out on a tangent that concluded with, "I can tell as soon as I start talking that the person I'm talking to is not getting what I'm saying."

"Maybe you're being a little too hard on yourself?" I volunteered.

"Nope," he said. "It's me. I been seeing it for 44 years now. It's me. I get going and lose track of where I'm going to."

"How good are you as a listener?" I asked him.

"No good at that either."

In fact, Blue was a good listener, very astute at pulling the main point from a complicated package of details. His problem was transmission. All his thoughts seemed to jumble at the end of his tongue, four or five at once, all massed into a profusion of half-formed thoughts and details. For lack of a better tactic, we worked on slowing him down so he could find his voice.

It took Blue awhile to see any progress. But he hung in there; he never missed a class. When I complimented him on this one day, he told me in his matter-of-fact way that the reason why was because his wife had told him she would leave him if he didn't sign up for this class. She was sick and tired of not being able to communicate with him, Blue said. A couple classes later, he mentioned with a fleeting show of pride that they were in counselling together. Then on the final day of class, he told that he'd gone in on his own time to use the computer lab in order to rewrite his marriage contract.

"Second time I married the same woman," he said with a grin, looking exponentially more confident and relaxed.

Below is the transcript of a tape-recorded interview in which Blue and another student take turns asking each other what they think about the class.

Blue interviewing Dixie:

Blue: "Tell me in your own words what it means to communicate."

Dixie: "Well, I believe that it means being able to express yourself well and get the point across the somebody else so they can understand what you're talking about."

Blue: "Why do people have to communicate?"

Dixie: "They've got to communicate so there's no errors and things, so they can understand each other, so things run smoothly."

Blue: "Tell me the value of living so others can see you and not living in a hole, so to speak. In other words, why do we communicate at all? What's the bearing?"

Dixie: "To express our views and to let people know we're around. If we can express ourselves, we don't have to hide in a hole."

Blue: "Tell me what you've gotten from this class."

Dixie: "I hope to be able to get up in front of people and express things that are on my mind and in my heart without the fear of being resented or looked down on like I don't know what I'm talking about."

Blue: "This class has a point it's trying to get across. Tell me in your own words what that point is."

Dixie: "To have confidence in yourself, to be able to get up and communicate and express your idea and have the confidence that that other people can understand what you're talking about."

Blue: "Do you have anything more you'd like to say about this interview?"

Dixie: "No, I guess not."

Blue: "I'd like to sum it up in this quote by John Rhodes: 'Do more than exist. Live. Do more than touch. Feel. Do more than look. Observe. Do more than hear. Listen. Do more than listen. Understand. Do more than talk. Say something. Do more than say something. Communicate.'"

Dixie interviewing Blue:

Dixie: "What have you learned so far in this class about communication?"

Blue: "Personally, I've learned to come out of a hole myself. I was at the point, 45 years old, where I didn't care too much about even existing anymore. And in my opinion, I've learned to come out of that hole, that I am an individual and I do have something to say to society."

Dixie: "During our camcorder speeches, did you learn anything from the people standing up front talking to you?"

Blue: "Yeah, I learned quite a bit. In two days time, just about anybody can get up and give a speech that's at least fifty percent presentable. I saw seven of my peers do it and myself, plus working an eight hour day and doing other things that were pretty tight. I thought that the two-day time frame wasn't near enough to give a speech like we gave, but everybody done a real good job."

Dixie: "Did you feel nervous while you gave your speech?"

Blue: "Myself, I feel nervous giving any speech. I feel nervous talking to people. And during that speech, it was more than nervous, I was blacked right out, I don't even remember being there myself. I don't know any other way to explain it. I was blacked right out. I was somewhere else; I wasn't up there giving the speech."

Dixie: "How willing are you now to take a chance in class and volunteer your thoughts and ideas?"

Blue: "I love to put myself on the spot. I been doing it more lately than I ever have. It's like walking out in front of a car or a train to me; it opens up your glands and gets the fluid running, so to speak."

Dixie: "Why did you sign up for this class?"

Blue: "To do something meaningful in my life, to learn to talk to my own peers. I was in a counselling session yesterday and I asked a guy to tell me something about the word 'submit.' And he started explaining to me how to mix cement. Just that one word. He didn't hear me say 'submit'; he heard me say 'cement.' I mean, y'know, it happens all the time in everyday life. People just don't hear the words you're saying."

Dixie: "Explain what a good instructor would be in this class. What would he do?"

Blue: "Everyday we come to class, the instructor surprised us with a new thing. To me, I don't know of anything that I would do different. What kept me coming back to this class was to find out what that new thing was that's gonna put me on thin ice. Or give me some fear. Or a new drive, a new thing to go on. Every class was a brand new experience. And I thought that was real good."

Red

Red is a vibrant communicator. A lay preacher in his church, he has no trouble expressing himself or communicating his feelings. Like many of his era, he squandered a fair amount of time partying and dabbling in alternative lifestyles, but he is a family man now and he takes that role very seriously. Red was a believer in what he called "impromptu stuff," where an exercise would be floated with no forewarning that forced the class to think on its feet and respond. "Spontanuity," he called it. He was not a big fan of exercises based on rote learning. "Burger flipping," he called that approach.

"For some reason, people are always afraid in situations they don't have any control over," he wrote at one point. "They try to get around that. But those are the situations where you grow the most. When you raise the anxiety level, people either respond or they really turn inward. And when you're in a group like this where there's camaraderie - we're all here for the same purpose - you can let your guard down and really enjoy it.

"We all have something interesting to say. All of us have a right to a thought, a right to a feeling. It's up to us, it's our option to decide if we want to relay that feeling to somebody else or not. What we need to draw out of each other is that esteem level, that feeling of self-worth. There ought to be an exercise just to get your self-esteem raised up."

Red really rose to the occasion during a presentation he gave to the class on beaver trapping. An experienced trapper, Red was ready with a frozen beaver he'd recently trapped, the trap he'd trapped him with, and a pelt stretched out and tacked to a board.

"Trapping is the oldest industry in north America," he began, working off an outline. But before long, as was his custom, he shucked the notes and went with an anecdote.

"You see a big aspen down in a pond and you can figure it's been done by a young beaver. Their young are just like teenagers. They see the biggest tree, that's the one they want to take down. A mature beaver knows better because they know they can't drag a tree that big back to their lodge. They go after smaller trees, trees they can use."

Red ended his presentation by telling the group about how gentle and interesting beavers are. One time, he told them, he trapped one alive and took it over to a friend's house, who wasn't home at the time, and left the beaver in a tub full of water. When Red's friend arrived home, he discovered a beaver in his bathroom eating his wooden toilet seat.

The men rose to Red's epiphany, pressing him for details until the hour was up. On the way out the door heading back to work, Red looked back and gave me a big grin.

"I love this stuff," he said.

Connor

Telling someone who hates writing to write something for you is like inviting a non-swimmer to jump in the deep end. With every fiber, they pull back. So it was with Connor, an intense assertive man who'd worked his way up to foreman after years of productive labor.

On the first day of class, in order to get a sample of each student's writing ability, I asked them to write me a paragraph telling me what they did for the company. Most bent to it with some interest, but Carl looked hostile, as if expecting more. He finished quickly and left his paper and pencil on the table, explaining on the way out that he had work to do. Based on his look, I figured he was gone for good.

Much to my surprise, he attended next time class met. In fact, he was there early. Curious, I watched as he read my comments on his paper. When he finished he stared out the window awhile, looking absorbed. He was quiet all through class, but totally attentive. When class was over and the rest had gone, he approached me.

"That's the first positive thing anyone has ever said about my writing," he told me.

He told his story quickly. He'd been with the company twenty years. Like many of the machinists, which is where he started out, he had been indifferent to school. What they talked about there meant nothing to him. Shop had been his favorite class. He married right out of high school and had four kids by the time he was twenty five. Working in the plant had been his only option.

Now nearing forty, his kids almost grown, he is in the prime of his worklife, good at his job and hungry to advance. He sees how it is and how it might've been, but he's proud of what he's accomplished, that he did it on his own.

"My brother went to college," he says. "He's got more degrees than a thermometer. Every six months or so I'll sit down to write him a letter. I'll work on it three or four hours then tear it up because it never sounds like me coming across. I write bullets."

He eyes me, a proud man asking for help from a pencil pusher. "All that's holding me back from a really good career with this company is that I never learned how to write free and easy."

Alvin

Sometimes small lessons linger the longest. During a late afternoon communications class, a student made this suggestion: "Hey, I been working since seven this morning - can you come up with a little twist or something to get us going?"

It sounded good to me, a fresh thought. So before every class, I would come up with a teaser, something fun that would reveal the complexity underlying even the simplest communication. The best teasers come from everyday experience, such as the sign along the river that read: "Warning - No wake restrictions in force!" A couple students saw the ambiguity immediately, but the rest needed time to see that this bold declarative message could be reasonably interpreted in two totally different ways. There are wake restrictions in force; don't make waves if you are a boater. Or, there are no wake restrictions in force; if you are a swimmer, beware of big waves.

They liked that teaser. But then they wanted more and better teasers.

Next time class met, I introduced them to "good skunk/bad skunk," a demonstration I'd seen done by a substance abuse counsellor working with inmates in a county jail. Good skunk/bad skunk works off the tendency we all have to get locked into misunderstanding. Listening is not just hearing words, I told them. It also involves paying attention to nonverbal cues and pulling back to look at something a new way when you get stuck in an unproductive pattern. I was going to try to trick them, and I told them that upfront.

Holding my arm out and bent at the elbow, I set the toy skunk on the back of my hand so they could get a good look at him. "I want you to tell me if this is a good skunk or a bad skunk," I told them. "I'll show you the difference right now."

I hopped the skunk three hops up my arm. "That's the good skunk, okay?"

They peered at the skunk, up at me, then back at the skunk.

I returned the skunk to the back of my hand and hopped him three hops up my arm. "That's the bad skunk, awright?"

They looked collectively mystified.

"I'll do it again," I said. "Okay." Three hops up my arm. "The good skunk." I returned the skunk to the back of my hand. "Awright." Three hops up my arm. "The bad skunk."

I gave them a significant look. "See the difference?"

No one saw it.

Alvin was the first to figure it out. A Vietnam vet with a slight hearing problem, Alvin would often close his eyes to hear above the noise of the mill downstairs. When he did that during the good skunk/bad skunk teaser, he quickly caught on that the difference was not in how the skunk hopped, but in the trigger words "okay" and "awright."

"That good skunk/bad skunk really comes to mind when I'm talking to people," Alvin told an interviewer from PBS several weeks later. "I talked to the boss of the finish room yesterday and what I was saying was going over his head and I was thinking, 'Now is that me or is that him?' Then I happened to think about the good skunk/bad skunk, and I thought, well, it isn't me because I'm getting what I'm saying and so I pulled back and said to the boss, 'This is what I mean.' And he says, 'Aw, I see what you mean now.' He was hearing my words but he wasn't understanding my meaning."

Understanding Alvin was a problem for a lot of people because he found it hard to get to the point. One reason why, he said, is that he often saw things in a flash of insight and it was difficult for him to then pick from the details of that self-contained image and describe in an orderly fashion what was on his mind. He was the first to admit that he wasn't a linear thinker.

"I was never a classroom person," he told the PBS interviewer. "I never wanted anything to do with school. And I really didn't want anything to do with this class either. But a couple friends convinced me to give it a try. 'Hey,' they said, 'We're a couple of dummies, too. Come on. We'll have a good time.'"

It was hard for Alvin at first. Nervous and talkative, he would frequently veer off into scatter-shot reminisence about his time in Vietnam, unintentionally commandeering the rest of the group on a long journey back through that turbulent era. And no one felt right about breaking in and telling him it was time to move on. But the good skunk/bad skunk was a breakthrough for Alvin. The following week, I videotaped each student giving short speeches on a topic of their choice. Being able to see himself as others saw him really seemed to help Alvin focus. He began to make progress, which he noticed first in his personal life.

"I didn't know how to say things to my wife so that she could understand," he said. "The things I would tell her, she wasn't getting. And I was getting frustrated to the point where I just wasn't saying anything. But after the first three classes here, I found myself opening up and getting better and when I'd talk to my wife, she'd say, 'I know what you're talking about now.'"

Alvin told the interviewer that his improvement was also carrying over into the workplace, where he was finding it easier to communicate with his bosses and had begun training new employees in his area.

"I was never a teacher," he said. "I could never teach anyone. Now it's no problem, breaking somebody in. Before I flatly refused to do it. I would not do it. Now my hand goes up all the time."

Lifelong learning means this to Alvin: "I think if you don't learn at least one new thing every day, that day would be wasted." With the PBS camera rolling, Alvin told this story.

"Recently I made a speech. I had a graduation to go to. There was like a hundred people there, some of 'em I didn't even know, and I was tending bar. My brother-in-law's daughter was graduating from high school. And I was telling them about this class and I was saying, 'I could stand up in front of these people and make a toast.' And my brother-in-law said, 'You want to do that?' And I said ,'Yeah.' So I stood up in front of all those people and made a toast. And it come out real well.

"Y'know," he told the interviewer. "I wish I'd had this class twenty years ago. I probably would've ended up with a different life."

CHAPTER SIX

Shop Math

By Kendall Sumerix
Workplace Partnership Math Instructor

"We design our own curriculum. At first I thought it would get easier and it would change and I thought, 'Maybe the next class I'll find just the right book.' And I looked and I didn't. I didn't find a book. I've come to the conclusion that there are no set books and no set curriculum because every workplace is different."

- Kendall Sumerix

Shop math, as the men call it, is quite a bit different than traditional mathematics. They don't use all the intricate little details and principles and proofs of what you'd consider to be math. Anyone who'd be hired to teach math would teach it they way they learned it, which is not what these guys had in mind. Shop math to them is applied math. It's how you use math to find an answer that will allow you to make a part. They don't want or see any need for information that doesn't directly apply to what they're doing in the shop.

I taught Trigonometry the first round - a class of fifteen. I had somewhat of an idea but I still didn't know for sure what we were supposed to be doing in there. Basically what they need to know in the shop about trigonometry is right angle trig; you can throw out all the proofs, all the identities, and most of the geometric constructions. But I still didn't know what these students knew. In order to draw that information out of them, I had to come up with a pre-test. So I went over to Besser Company and specifically asked if I could see an examination they had for an inspector's test.

(A story we heard often during start-up centered around this inspector's test. The moral of the story seemed to reveal to company management in a way that consultants and task analysis surveys could not that re-educating their workforce was an immediate priority. The story went like this: not long ago, during a business upswing, Besser

Company discovered a need for more inspectors. Too many problem pieces were slipping out the door. Management had a test on file that covered all the material they felt an inspector should know - mostly applied trig. They gave the test to everyone who bid on the inspector openings, but nobody graded out with a passing score. Rather than embark on an intensive re-education program for those specific employees, what Besser Company did, because they had an immediate need for inspectors, was to lower the standards for passing the test.)*

I thought if I could just get them to pass all the trigonometry on the test, that would be a significant improvement. So I went through and got some ideas on how they used trig in Besser Company - and how the company perceived what trigonometry the employees needed to know - and from that I designed a pretest.

The results were kind of disappointing. After I corrected the test, I found that only two or three of them knew anything about trigonometry. The rest of them knew absolutely nothing. So I immediately realized that I couldn't just begin the first day talking about, "This is trigonometry and this is what we do..." I was going to have to spend some background time.

I kept coming back to, 'What do they need to know?' I ruled out algebra because I could've spend sixteen hours on algebra and we would've never gotten to trigonometry. From my perspective, we couldn't teach right angle trigonometry without a little geometry. So I went back and thought, "What do I need to know to teach trigonometry?" You need to know something about a triangle, the parts of a triangle, legs, sides, how many sides a triangle has - most people knew that but there were some that didn't. So I went back and we talked about triangles, angles, and how the sum of the angles of a triangle are 180 degrees. And then we drew some triangles. And that was the first day of regular class instruction.

The second time we met, we talked about the Pythagorean Theorem, which means that we had to lay out the theorem and explain how it came about and why it worked for right triangles. When they saw that it enables us to take two sides and find the third measurement, that was great. Suddenly these people were turned on because they were making significant gains - things they could apply. And yet, initially I felt bad, like I was cheating them. Or cheating the system. Or the college. Or somebody. I felt a little bit guilty because I thought this is not the way it's taught.

The traditional approach is you grind in mathematics and arithmetic. Then you step up and teach them all about algebra. Then they've got to know all the things about geometry, all the proofs, and then you start with trigonometry. I thought, this is backwards. Here I am - not teaching all the geometry, hardly teaching any algebra, they didn't even know how to run the calculator and some of them weren't even good at arithmetic. And I was jumping into trigonmetry.

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*author's note.

But you know, that sparked an enthusiasm in the class, the fact that they could do something that they could take back and use. Even though it was way over their head. And I'll be darned if by the end of class everyone could do some right angle trigonometry. There was only one or two out of the fifteen who you would call marginal - they could do some of it but not all of it. Everyone else in that class could do all the right angle trig necessary.

I've since gotten over the feeling that they're missing something. Seeing their progress and what they need to know, I really think I'm doing them justice. Seeing what they need to know to survive and giving them the skills they need takes away that anxiety. You just come to a point where you say, "I don't care; they're learning what they need to know to succeed on their job."

High Expectations

I think what turned them on is the fact that I just assumed that they knew something - even though they didn't - and jumped and ran on, kept pushing, and expected them to catch up. I've only had two or three out of the hundred so far that I've taught that didn't catch up. Eventually. Which means that they will go home and spend time, they will talk about it amongst the guys in the shop.

I gave them an unreasonable assignment. In school at a younger age level, that's very detrimental. We're taught not to do that. It's not good for the students. You discourage them. They become intimidated and quit. But in the workplace, these people are not going to come and invest their time just to be warehoused. My biggest fear was that most of them would leave because of intimidation - that 12 out of the 15 would quit and I'd be left with two or three. But that isn't what happened.

They do come through. They will think together. They will work together. The harder you make it, the more they like it. It's a challenge for them. And they don't get many challenges in the workplace. If you don't challenge their minds and get them moving, you're not going anywhere.

THE WORKPLACE PROJECT FROM A STUDENTS PERSPECTIVE

BY KENDALL SUMERIX

A conversation with a student at Besser Company revealed that some new things are happening in the shop. The student reported that before taking a workplace math class he never used the metric system before because he never liked it. Currently, only three weeks after the class, he uses a metric scale for measuring his work. This provides many advantages. First, many drawings contain metric measurements and when these are converted to the English measurement system they often don't correspond to any common fraction. This causes errors in trying to build accurate machines. Accuracy building metric parts can only be achieved by having metric drawings, metric scales, and people who understand the metric system. For this individual worker, following the metric system through the assembly process has improved accuracy, made work less confusing, and I quote "saved a lot of time".

The worker also noted improved confidence in his work at Besser. Now he knows when metric measurements are correct. A side benefit from all this is a sense of working together. "It's different now. People from the math class- they always speak when they see each other now." he stated. This worker is excited about his chance to learn how to make a difference in the workplace. Something new is happening in the shop.

CHAPTER SEVEN

Setting the Agenda

By Janet Fulton
Workplace Partnership Reading Improvement Instructor

"Students need to feel that some of their needs have been met. That it has been worthwhile for them, not just for the company to release them but that they have actually taken something away from class that has extended their thinking, maybe changed a pattern of life, helped them to be more willing to accept change, whether it be on the job or in their personal life. If I have done any of those things, I think I have been successful."

Introducing course information and student feedback into the first class can be a hard lesson to bring off effectively. The goal is to orient the students to class, create proper expectations, develop a sense of student participation and community, as well as provide them with some success and/or new knowledge by the end of the class session. All that is easier said that done.

Interactive Introductions

I began each class by passing out colorful 5X8 index cards. Then I asked each student to take a few moments to complete the following six categories of information I had placed on a flip chart:

(1) name;
(2) list your WPM (word per minute reading rate);
(3) complete the phrase, "Reading is..."
(4) what specific skill, habit or hobby have you embarked on or recently completed? Include a completion date if applicable.
(5) why are you taking this course? What reading skills do you want to develop, refresh or revitalize?
(6) list the top three issues you talk about.

Adult learners have specific goals and agendas, which this exercise helps to bring to a conscious level. Sharing this information out loud in discussion helps to develop a sense of community in the classroom, an environment of accceptance. Instructors are included!

When students in the workplace see that they share similar goals, problems and aspirations, they accept the fact that they are all in the right place to learn. Most importantly, they feel comfortable learning together with peers from the workplace.

There is also instructional value implicit in this exercise. Collecting information that will impact workplace curriculum creates teachable moments based on the student responses. For example, consider the question calling for a WPM reading rate. This might be a complete guess because most people don't know or keep track of that information. It catches them off guard, betraying their expectations, and gets them thinking about the need for or possible relevance of a WPM reading rate.

Next, I ask them to complete the following sentence, "Reading is..." Here I am looking for their attitude about the reading process. Do they like it? Do they hate it? What is their reading orientation? Each adult brings some specific notions to the reading process, either positive or negative, and those attitudes will be important to the instructional delivery later on. If you can identify them in the beginning, you can consciously reshape or challenge negative thoughts while you build on the positive. Forewarned IS forearmed.

Asking students to recall specific skills, habits, or hobbies they have developed (preferably with a completion date), makes them consciously address information related to both attitude and skill development. It is a fact that to increase your reading abilities you have to specifically retrain and create good reading habits. Reading is a process and therefore requires energy and involvement. Since none of us were born reading, we all have to work at it. This discussion is a wonderful introduction to individual learning contracts or individual education plans (IEPs) with students. Through these education plans, students come to realize that their involvement is crucial to their improvement and/or stated class goals. The responsibility for learning rests on them, not solely on the instructor.

Curriculum development requires ongoing creative designs. Instead of teaching only a stated objective, you are teaching students who have very specific ideas about what skills they need to acquire. Asking them to record the reason they are in the course along with what specific reading skill they want to develop, refresh, or revitalize causes them to become partners in setting the instructional agenda. Student investment and student accountability are definite advantages.

Finally, students were asked to list the top three issues they would talk about or pursue. Political, environmental, workplace or personal issues were common concerns. Having such a fertile list of student-generated curriculum topics means that the instructor does not have to impose specific reading instructional material from outside the workplace setting. Instead, student concerns become the backbone of material creation. Incorporating vital issues of concern into the reading process keeps people on task and creates a clear and meaningful agenda. Solicit that information from the students in the first class and you will have a dynamic topic for every session.

Syllabus Review

A well-designed syllabus can help you create a positive and well-defined learning community. It must set out clear course objectives and requirements. Students need to know how and when to contact the instructor. If attendance requirements appear in writing then there can be no excuses or manipulations at a later date. Everything basic and everything necessary can be written concisely and distributed to the students on the first day.

A simple but thoughtful review of this material will keep your students focused. If there is time for discussion, it is helpful to complete it on the first day. Students need to clarify issues and concerns before they willingly engage in the learning process ahead.

Informal Pre-Testing

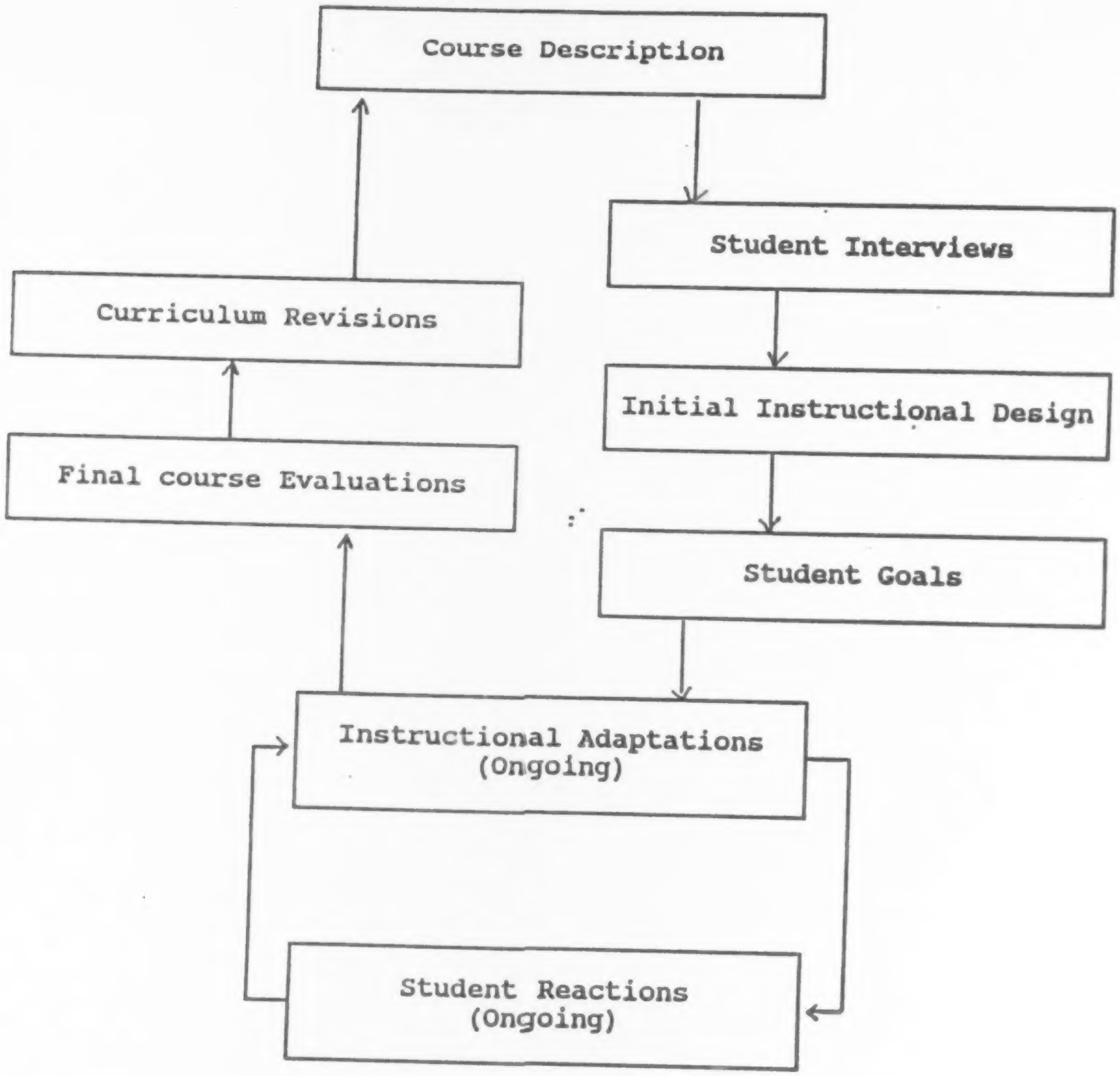
End the first day with an informal pre-test for the class. I usually use a timed reading exercise which discusses reading rates and reading for meaning, so students not only discover their WPM reading rate (conjectured in the opening interactive exercise) but also interact with information about the reading process. The selection includes information disclosing the national WPM norm. When students compare their conjectured rate with their actual results, in most cases they discover a realistic rate at which to shoot.

The reading also includes a short comprehension quiz. Questions check for understanding and indentification of thesis statements, main ideas, reading for details and some inference questions. Students are able to see quickly how well they are reading. Questions are answered without referring to the text. The entire exercise causes students to reflect on their current reading abilities and takes fewer than 20 minutes. There is nothing like an instant dose of reality to get students to face the truth.

It has not been uncommon for students to make the following comments: "I've really lost a lot since high school. I used to be a better reader." Or, "I'm doing pretty well against the national reading rate but my comprehension really needs work." All of them come away with a clear sense of where they are and what they need to improve. Tangible and meaningful goals are set from the first day. This really sets the stage for learning.

Summary

One exercise alone may not adequately accomplish an interactive and instructional first-day agenda. I found I needed something to create a clear sense of student expectation and community while commencing instruction. My goal included having student involvement from the first day to the last. The three-step strategy outlined above worked well for me.


Course Description
Student Interviews
Initial Instructional Design
Student Goals
Instructional Adaptations (Ongoing)
Student Reactions (Ongoing)
Final course Evaluations
Curriculum Revisions

CHAPTER EIGHT

The Interactive Approach

By Don MacMaster
Workplace Partnership Communications Instructor

"I'd never taught adults before and I realized that if you give them the opportunity, they will tell you what they need to know. So I listened to them a lot and tried to figure out what they said they wanted and tried to deliver that back to them."

- Don MacMaster
Communications Instructor

Early Warning Signs

Workplace communications classes are icebreakers for the most part, a journey into uncharted waters for both students and the instructor, and they are challenging (and interesting) precisely because the destination is unknown. Job one in a workplace communications class is giving workers room to find their voice. They need to be able to express themselves. But before that will happen, a channel of trust needs to be opened between the instructor and the students. The students need to know that what goes on in the classroom stays in the classroom. Giving your word is not enough; they will be watching your judgement.

As an instructor, it's crucial to establish as soon as possible the dynamics in the classroom. The best way to do this is to ask questions. Find out what areas are sensitive to the group. But don't take sides. Often two students who don't see eye to eye are caught up in labor-management entanglements, a high stakes battle with a long history. Establish as discreetly as possible how that equation plays out, and then make a conscious decision whether or not it's worth the potential gain to risk the trust factor by confronting authentic workplace issues in a problem-solving curriculum.

Never blunder into union-management issues.

The instructor needs to play it straight down the middle and not take sides in company politics. That will be the first challenge. Even if you have all union members in your class, or all management, playing one side against the other diminishes you in the eyes of the fair-minded students, who tend to be there for personal reasons that have little to do with work, or who sign up for workplace classes as a release from the daily stress of working in a confrontational environment. They don't want to come to class to hear more of the same burnout stuff they hear at work everyday. Allowing class to go in that direction does these students a profound disservice because they'll quit and won't come back.

When you're dealing with authentic issues, it's a constant judgement call about where and when to draw the line between legitimate discussion and aimless griping. If you cut discussion too short, you may prevent students from dealing thoroughly with two main issues - how can I improve as a communicator, and how can communication in the workplace be improved? If you let discussion run too long, you'll eventually hear something like this - "Well, I been here twenty years and it's never been no different. So what's the use in talking about it. Nothing's going to change. Let's go on to something else." When you hear this, you'll also hear a nasty grinding sound, which will be the momentum of your class screeching to a halt.

Wearing Blinders

It's not always the case, however, that men who don't get along are caught on different sides of the union-management issue. Sometimes it's just a clash of personalities. I taught a workplace class in which two employees, both bright men with responsible positions and twenty years seniority, just couldn't work together. One was high-skilled verbally, had done a lot of good reading, and was quick on his feet when it came to expressing himself. The other hated to read, was self-conscious about his spelling a grammar, and tended to keep to himself. For most of the course, the confident man dominated discussion and produced the most ideas, while the quiet man looked almost henpecked into silence. I had no idea that this key classroom dynamic had essentially silenced one of the voices until the good communicator was forced to miss a couple classes due to a family emergency. Suddenly the quiet man emerged from his shell and began to participate. By this point I was so accustomed to his reticence, the transformation seemed doubly startling; he had been paying close attention all along.

"It's nice to hear what's on your mind," I told him. "Where have you been this whole course?"

"Well," he began with a smile, "-----'s not here today. When -----'s here, he's always correcting every little thing I say, so I keep my mouth shut.

"He's just like a mother hen," said another student, jumping in. "He's watching over you every second."

Because I did not sense what was going on between the two men, neither ever mentioned it before, the class did not go as far as it might've gone.

Creating a Community Feeling in the Classroom

Establish a personal connection to each student by learning his name and using it persistently. Let the students see that you care about them as people, and that you realize that they are adults like yourself, with the same adult concerns and responsibilities.

Ask questions about what they do on their jobs. Listen to what they tell you. Then figure out ways to factor what they've said into the lesson plan.

Don't be afraid to let other students jump in and talk. Adults in the workplace need a moment or two to let off steam before they can settle into a classroom environment. Far from being a waste of time, these moments often contain the raw material for real instruction, especially if you're teaching a problem-solving or communications class, because the problems are pertinent and the students are engaged.

Shared Misery

I believe in shared misery as a catalyst for bringing the class together as a group. There are a number of ways this can be done, but the most successful for me has been using a camcorder to videotape each member of class giving a short speech. Nobody is blase about giving a speech; factoring in the camcorder gives the assignment an added edge. What's good about the camcorder, beyond its capacity to up the ante a bit, is that you can show the videotape the next time class meets, providing the most compelling and immediate feedback to the student.

I find that the class is much closer emotionally and more tolerant of opposing viewpoints after each man gets up and exposes his thinking to the rest of the group. Because most of the students enrolled in our program were factory workers, they were not in a position where they dealt much with the public. They tended to be sensitive about what they perceived to be their lack of polish in this area. Some said it helped to see how others saw them. Others said it showed them the value of working off an outline after they saw the consequences of winging it with no preparation. One man told me that he liked the assignment because he had a hungry ego to feed, and seeing himself on tape beat working under a welder's hood.

But the majority of the students said that speaking in front of groups had always been hard for them, incapacitating in some cases, and they appreciated the opportunity to get up and practice under relatively controlled conditions speaking on a topic of their choice. Knowing that every other member of class was going to have to also get up and speak made it easier, as one student put it, "To get up and make a fool of myself." Saying that it was the hardest thing he'd had to do in a long time, the man then concluded that it was fun and he'd like to try it again.

Veto Power

Giving workers veto power over the curriculum doesn't absolve you of prep work. Far from it. I think you need to come to class more prepared than you would if you were working off a rigid syllabus. Flexibly addressing student needs and interests is based on being able to deliver on short notice highly pertinent material. That doesn't just happen. You need to anticipate which way class might turn and prepare material that will engage them should they go in that direction. Respond to them quickly and meaningfully and they will begin to trust that your agenda really does depend on theirs.

The interactive approach is demanding. It can be like trying to herd cats. But if a community feeling has been established in the classroom, an interesting metamorphosis will begin to take shape. Energized by class discussion, students will start showing up for class with issues and materials that interest them. If you can tie those issues and materials together, you create lessons that have been generated by the students, which will lead to a feeling of ownership on their part and all the intangibles that ownership entails. Pride, for instance. Effort. Emotional investment. Thought.

A sort of de-mystification of the teacher occurs; they begin to see you as a facilitator, as a guide instead of a boss. Ultimately, they will turn their attention from classroom matters to issues at work in the community, seeking to bring some of the energy they've experienced working together to solve real problems characterized by slipshod thinking or unproductive communication.

Significant learning can take place on the way to somewhere else in the workplace classroom. When workers realize that they can be teachers too, the class becomes more real to them. Then what goes in on class has a chance of carrying over into the world outside the classroom door.

Activities that promote community feeling in a workplace classroom:

(1) journal writing
(2) reading out loud
(3) group discussion
(4) videotaping short speeches with a camcorder
(5) group writing assignments
(6) using student generated materials
(7) problem-solving exercises related to community or family issues
(8) involving students in selling the project

Selling the Project

Selling the project makes sense to most adults in the workplace. In a communications class, I've found that selling the project can be worked quite effectively into the curriculum. For example, last winter Michelle Engler, first lady of Michigan, visited ACC to discuss, among other things, our workplace education project. Two days before her arrival, it occured to me that having the class put together a group statement would not only help her understand what we were doing, but would also force the group on short notice to tie together all the things we'd been working on in class.

When class met that day, I cut to the chase, telling them that I was scheduled to meet with her the following morning, that she was interested in our project, and that I wanted something fresh from our class that would stick in her mind. I presented it as a challenge.

"We only have an hour of classtime to put this together," I told them. "This is going to be a practical test of your ability to think on your feet and work together as a group."

Though they were tired from a full day's work and the assignment caught them completely off guard, they quickly rose to it and began putting ideas together, in part because the importance of doing a good job was implicitly clear to them.

Me: (at the board) "What comes first?"
Them: "We'll need to identify who we are."
Me: "Okay, give me a sentence."
Them: "We are the students of Communications 081."
Me: (writing on the board) "Okay?"
Them: (in a deliberating tone) "I guess so."
Me: "What's next?"
Them: "I think we ought to acknowledge who she is."
"No, I don't think so. She already knows who she is."
"That's right. We don't want to waste her time."
"Keep it short and sweet."
"Maybe something like, 'We're happy to make your acquaintance.'"
"But we're not meeting her, so we can't say that."
"Our letter is meeting her."
"Okay. Right."
"How about, 'We are happy to indirectly make your acquaintance.'"
"Okay, that'll work. Yeah. I like it."
Me: (writing it down on the blackboard) "Good. What's next."
Them: "Thank her for coming."
Me: "Okay. Give me a sentence."
Them: "Thanks for coming."
"No, it needs more than that. That's too informal."
"How about, 'We appreciate you coming?'"
"That's better."
"How about, 'We appreciate you showing enough interest to come all the way up here.'"
"Too long, too many words."
"We appreciate your interest in our program."
"We appreciate the interest in what we're doing."
"We appreciate the interest you've shown in what we're doing."
Me: "Good! I like it. Okay, we have three sentences that work pretty well together. Where do we go from here?"
Them: "Tell her what we did in class. She'll want to know that."

"But that should go in the second paragraph."
"I think we should say something about this being an ongoing thing."
"And that we're learning as we go."
"How about including in there somewhere about this being one of the first Workplace Partnership classes."
Me: (writing) "So how do we put all this together?"
Them: "Thanks to the instructor, every hour is a new experience."
Me: (laughing) "I'm not sure how to take that, men."
Them: (they laugh then fall silent, as if stuck. It's tempting to jump in and try to help them sort it out, but their eyes are focused on the board. They're thinking hard. So I let them work through it in their own way. And they do.)

"How about mentioning everybody involved in one sentence - 'Thanks to the combined efforts of ACC, Besser Company, the students, instructor and staff.'"
"I like that. What you could do is tie that to, 'We are learning as we go, thanks to the combined efforts of ACC, Besser, the students, instructor and staff.'"
"That says it, I think. But don't you think the first line should play up the ongoing, developmental angle, and then that would tie into the last line about what we like about class, that every hour is a new experience. Plus that works better into the second paragraph, which is about what we did in class."
Me: "You're talking about transitions there."
Them: "What's that?"
Me: "How one thought ties to another."
Them: "You mean flow?"
Me: "You might say that."
Them: (sounding less interested in what the concept is called than how it might be applied.)
"Oh. Okay."
Me: "Let's nail it down then. How do the last two sentences of the first paragraph read?"
Them: "As one of the first workplace partnership classes, we are learning as we go. Every hour is a new experience, thanks to the combined efforts of ACC, Besser Company, the students, instructor and staff."
Me: "That's good, men. I like it. Let's go on."

What I liked about this lesson is that once it was going, learning situations fired off in a number of meaningful directions. It was possible to teach grammar and parts of speech in a context that made them relevant issues. The men were much more receptive in this setting than they would've been if I'd spent the same time drilling them on the same material. They enjoyed fitting ideas together to make a coherent message that conveyed the proper tone; to them that was writing. And they liked the fact that they could monitor their own progress, that it was as plain as the board on the wall, and that they were working toward a specific goal. The letter they produced is copied below. Mrs. Engler's reply is on the following page.

Group project 2/20/92

Letter to Michelle Engler

We are students of Communications 081. We are happy to indirectly make your acquaintance. We appreciate the interest you've shown in what we're doing. As one of the first workplace partnership classes, we are learning as we go. Every hour is a new experience, thanks to the combined efforts of ACC, Besser, the students, instructor and staff.

Communication is the lifeline to society and modern technology, as well as community and family. To help us see how other people see us, we used the camcorder, tape recorder and group discussions. We've also learned to use computers as a communications tool. We've learned the difference between one-way and two-way communication, and we've worked on listening and problem-solving. Our self-esteem is improved by what we learned in Communications 081. Programs like this are very beneficial to the team concept.

We thank you for the opportunity to share our thoughts with you. Please feel free to comment. We would like to hear your thoughts.

STATE OF MICHIGAN
OFFICE OF THE GOVERNOR

MICHELLE ENGLER
FIRST LADY

March 11, 1992

Students of Communications
Ms. Rita A. Macy, Asst. Dean
Workplace Partnership Project
Mr. Don MacMaster
Communications Instructor
Alpena Community College
666 Johnson Street
Alpena, Michigan 49707-1495

Dear Students:

Thank you for the letter you presented to me during my recent visit to Alpena Community College and the Workplace Partnership Project. I was very interested to learn of the educational partnership between Besser Company and Alpena Community College. I offer you my congratulations and appreciation for your participation in working to bring new, innovative and important enrichment programs to Company employees.

As you know, the United States is part of a global community, now based on economic rather than political or military relationships. To maintain a leadership position, we must continue to compete successfully in this global community. It is apparent that the Partnership program is meeting the challenge of today -- that is, restructuring the educational process to face the future. We can tap the incredible talents of all of our nation's citizens by providing them with educational experiences through opportunities such as those offered by this special partnership. I am confident that with the help of the Workplace Partnership Project and its communication programs, we will be able to accomplish this.

Again, thank you for sharing your thoughts and views on this most effective and innovative program! Best wishes for continued success.

Warm regards,

Michelle Engler

Michelle Engler

P.O. Box 30013 • Lansing, Michigan 48909

CHAPTER NINE

Integrating Computers Into Workplace Instruction

By Janet Fulton
Workplace Partnership Communications Instructor

"I look at the computer like a tool - like a hammer or a wrench. But a lot of 'em are scared to death of those suckers."

- Gordon Udell
Shop Steward
Besser Company
Re: worker attitudes
toward computers

Computers are everywhere today. And they are here to stay. In the workplace, many companies are turning to integrated systems in which every facet of the business can be monitored from a keyboard terminal. Many manufacturers have had to computerize their manufacturing processes in order to survive in the marketplace. Few workers are neutral about these changes because they have seen firsthand how computer technology has made many traditional, high-paying, skilled-labor jobs obsolete. Jobs they used to have, in other words, no longer exist. So they have limited options: Either retrain; bump down to no-tech, low-paying menial labor such as custodial work; or get in line down at the unemployment office.

Children who have grown up in the computer age are relatively undeterred by interacting with information that comes with flashing lights and machine noise. But adults are not so malleable. Unlike children, adults are seldom attracted by computer games. Some are afraid to touch the keyboard, afraid they might break something or mistakenly erase a key piece of computer data. Adult learners in the workplace want to be right and they know the computer is going to tell them they are right or wrong with the touch of a key. This can be a paralyzing insight, especially for the older worker. So the challenge for the instructor is getting workers to believe that computers are a tool, no more sophisticated than other machines, and that figuring out how to use them is an attainable goal.

We addressed computers in the workplace by linking them to content-based instruction in three specific applications. Word processing was the focus of the communications classes. In reading improvement classes, students used authorable software to help increase comprehension and speed while addressing vocabulary improvement. In the math classes, 333computer applications included spreadsheets in combination with geometric formulas. In each content area, the best lessons were those in which the student/learner was not even aware of the machine. It was simply a medium for conveying or interacting with pertinent information. Demystifying the computer is a necessary first step.

Authorable Software

Analysis of computer assisted instruction is important. Look for programs that can be coordinated in order to enhance instruction and increase student motivation for learning. I find that well-designed, low-cost authorable software often suits this purpose. Authorable software can be purchased with a basic program design, then fitted with more data through an onboard editor mechanism. The advantage of inputting your own data is to create interest and involvement in what may be a fairly routine program but one which addresses needed repetition and problem solving skills by the learner.

Authorable software in the form of a text reconstruction program entitled "RHUBARB" was used to effectively coordinate and forge cooperation across two content areas. Don MacMaster taught a class in communication skills prior to my reading improvement class. Don had asked his students for their final assignment to write a page on the most difficult aspect of their jobs. There were a wide range of skill levels in the communications class and students from nearly every department in the mill.

My class started a short time after his ended and a number of the same people signed up for reading improvement that had taken the communications class. After getting student authorizations, I edited the writing assignments in order to meet the software program limitations and entered them into the text reconstruction program.

"RHUBARB"

My feeling at the beginning of the day was that if they weren't extremely interested in language structure the lesson might bore them. If so, the point of application would be lost and they wouldn't work long enough to really understand some of the skills we were trying to bring to the conscious level.

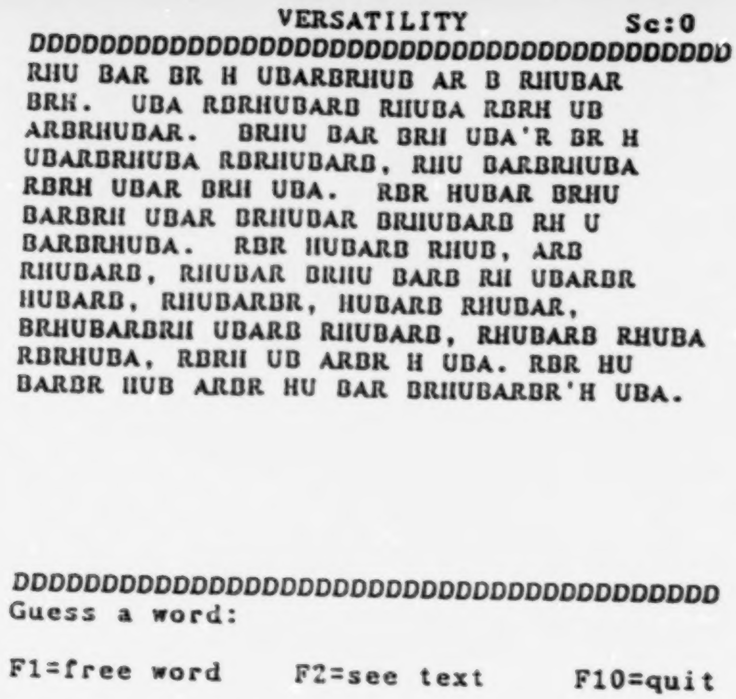
But to my absolute delight, the students bought into the lesson and spent the entire two-hour class period in focused concentration at the keyboard, trying to reconstruct student papers by guessing at words that might logically fit into a paragraph of job description. As they worked through the program, they were thinking of application not only in reading but also, almost on a subconscious level, about some of the concepts that had been taught in communications, such as tone and voice.

Because the students were familiar with who had been in the communications class, where they worked in the plant, and how they might write up their job description, the students became astute premise detectives and began to narrow down the possibilities. Without realizing it, they were learning valuable computer skills while engaged in this larger effort to discover whose writing assignment was hidden underneath "RHUBARB." When adult learners begin to understand that the computer is a tool they can master, their apprenticeship on the machinery has already begun.

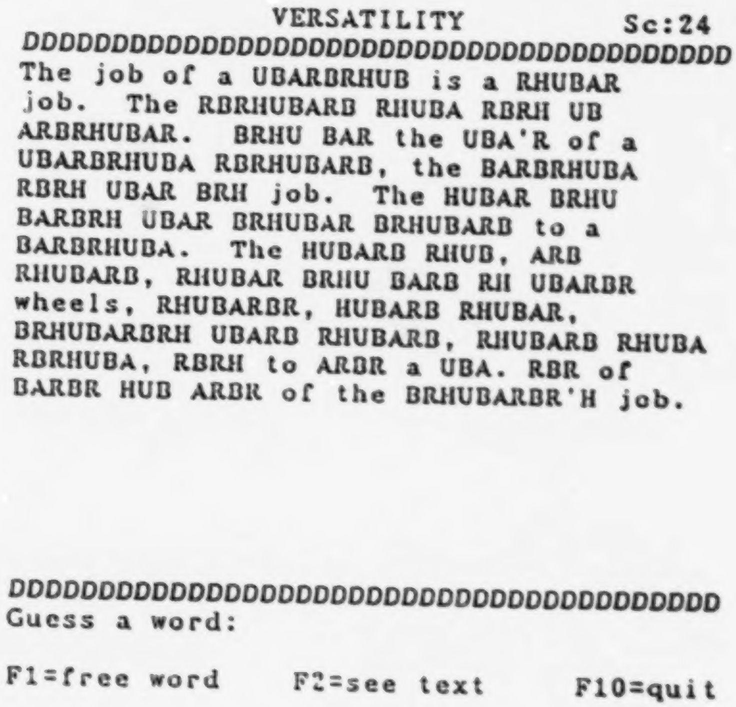
A pair of handouts illustrating the "RHUBARB" program is reproduced on the following two pages.

```
                 VERSATILITY          Sc:38
DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
 The job of a repairman is a varied
 job.  The repairman today must be
 versatile.  BRHU are the UBA'R of a
 UBARBRHUBA repairman, the repairman
 that UBAR one job.  The HUBAR BRHU
 BARBRH UBAR BRHUBAR BRHUBARB to a
 repairman.  The HUBARB RHUB, ARB
 RHUBARB, RHUBAR BRHU BARB RH UBARBR
 wheels, RHUBARBR, HUBARB RHUBAR,
 BRHUBARBRH UBARB RHUBARB, RHUBARB RHUBA
 RBRHUBA, RBRH to ARBR a UBA. RBR of
 BARBR are ARBR of the BRHUBARBR'H job.




DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
Guess a word:

F1=free word     F2=see text     F10=quit
```

```
                 VERSATILITY          Sc:38
DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
The job of a repairman is a varied
job.  The repairman today must be
versatile.  Gone are the day's of a
speciality repairman, the repairman
that does one job.  The paper mill
offers many various problems to a
repairman.  The beater room, for
example, offers jobs such as spider
wheels, bearings, broken shafts,
quillotine blade changes, refiner plate
changes, just to name a few. All of
these are part of the repairman's job.




DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD

ANALYSIS     PRINT     RECORD     MAIN MENU
Analysis of the text and your answers
```



```
                    VERSATILITY          Sc:0
DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
RHU BAR BR H UBARBRHUB AR B RHUBAR
BRH.  UBA RBRHUBARB RHUBA RBRH UB
ARBRHUBAR.  BRHU BAR BRH UBA'R BR H
UBARBRHUBA RBRHUBARB, RHU BARBRHUBA
RBRH UBAR BRH UBA.  RBR HUBAR BRHU
BARBRH UBAR BRHUBAR BRHUBARB RH U
BARBRHUBA.  RBR HUBARB RHUB, ARB
RHUBARB, RHUBAR BRHU BARB RH UBARBR
HUBARB, RHUBARBR, HUBARB RHUBAR,
BRHUBARBRH UBARB RHUBARB, RHUBARB RHUBA
RBRHUBA, RBRH UB ARBR H UBA. RBR HU
BARBR HUB ARBR HU BAR BRHUBARBR'H UBA.




DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
Guess a word:

F1=free word    F2=see text     F10=quit
```



```
                    VERSATILITY          Sc:24
DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
The job of a UBARBRHUB is a RHUBAR
job.  The RBRHUBARB RHUBA RBRH UB
ARBRHUBAR.  BRHU BAR the UBA'R of a
UBARBRHUBA RBRHUBARB, the BARBRHUBA
RBRH UBAR BRH job.  The HUBAR BRHU
BARBRH UBAR BRHUBAR BRHUBARB to a
BARBRHUBA.  The HUBARB RHUB, ARB
RHUBARB, RHUBAR BRHU BARB RH UBARBR
wheels, RHUBARBR, HUBARB RHUBAR,
BRHUBARBRH UBARB RHUBARB, RHUBARB RHUBA
RBRHUBA, RBRH to ARBR a UBA. RBR of
BARBR HUB ARBR of the BRHUBARBR'H job.




DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
Guess a word:

F1=free word    F2=see text     F10=quit
```

CHAPTER TEN

Student Work

"I am a community educator. I feel that to be a community educator, first you have to believe in community. You have to believe in working with all kinds of different people. I think the kinds of people often neglected are the adult learners. A lot of times you see these people - they might have had a colorful history in high school - working as blue collar laborers. Now it's their settle down time, their time to grow and mature, and they want to do some things with their life that they didn't think they could do.

"That's my enjoyment, making some of those things happen. I love working with development of materials, coming up with new ideas, things that actually reach people. When I see a student working on something in a classroom setting that I've had some small hand in helping design, that's a real high for me. Hearing them say, 'Yeah, this is neat, let's do it. Can we do something else like it?' - I like that.

"A very deep personal belief for me is educating the whole person, very much of a holistic education. Everybody's on a learning journey. We all experiment with knowledge on a daily basis whether we classify that as coursework or not. This is one way of helping people to zero in on their dreams."

- Rita Macy
Workplace Partnership
Project Director

"More homework."

- Math student to
Math Instructor

The novelty of workplace education doesn't wear off when students don't consider it to be a novelty. As the work collected on the following pages indicates, they are capable of putting considerable time and effort into doing high quality work. This chapter is theirs.

FORMULAS:

SURFACE AREA : LENGTH × WIDTH = ANS.^2

VOLUME : LENGTH × WIDTH × HIGHT = ANS.^3

CIRCLES AREA: πR^2

AND

CIRCUMFRENCE: $C = 2\pi R$

$R = \frac{C}{2\pi}$ $D = \frac{C}{\pi}$ $C = \pi D$

$D = 2R$

VOLUME OF CYLINDER: $\pi R^2 \cdot H = \text{ANS.}^3$

VOLUME OF A CONE : $0.2618 \cdot D^2 \cdot H = \text{ANS.}^3$

SIMPLIFY FRACTIONS $\boxed{a\,{}^{b}\!/_{c}}$

MIXED NUMBERS

$2\frac{1}{4}$ TO DECIMAL: $2\,{}^{1}\!/_{4}\ \boxed{=}\ \boxed{a\,{}^{b}\!/_{c}}\ 2.25$

IMPROPER FRACTIONS

$2\frac{1}{4}\ \boxed{\text{SHIFT}}\ \boxed{a\,{}^{b}\!/_{c}}\ {}^{9}\!/_{4}$

$\frac{1}{2} \cdot \frac{5}{8} = \frac{5}{16}$ $\frac{3}{4} \cdot 3\frac{1}{2} = 2\frac{5}{8}$

(BELIEVE IT!)

ROOTS & RADICALS

$4^3 = 4\ \boxed{x^y}\ 3\ \boxed{=}\ 64$

$\sqrt[3]{8} = 8\ \boxed{\text{SHIFT}}\ \boxed{+/+}\ \boxed{=}\ 2$

$\sqrt{36.392} = 36.392\ \boxed{\sqrt{\ }}\ 6.0325$

$\sqrt[3]{\frac{428.8}{6.7}}\ \boxed{\div}\ \boxed{=}\ 64\ \boxed{\text{SHIFT}}\ \boxed{+/-}\ 4$

TRIGONOMETRY

TO FIND: TAN 48°.... $48\ \boxed{\text{SHIFT}}\ \boxed{^{\circ}\,'\,''}\ \boxed{\text{TAN}}\ 1.110612515$

$14^{\circ}25'36'' = 14\ \boxed{^{\circ}\,'\,''}\ 25\ \boxed{^{\circ}\,'\,''}\ 36\ \boxed{^{\circ}\,'\,''}\ \boxed{\text{SHIFT}}\ \boxed{^{\circ}\,'\,''}$

$\text{SIN } A = \frac{a}{c}$ $\text{COS } A = \frac{b}{c}$ $\text{TAN } A = \frac{a}{b}$

$\text{SIN } B = \frac{b}{c}$ $\text{COS } B = \frac{a}{c}$ $\text{TAN } B = \frac{b}{a}$

SOH CAH TOA

CHANGE 30 MI/H TO FEET PER SECOND 369-62-4880

$$30\frac{\text{MI}}{\text{H}} = \left|30\frac{\cancel{\text{MI}}}{\cancel{\text{H}}}\right| \left|\frac{5280\text{ FT}}{1\cancel{\text{MI}}}\right| \left|\frac{1\cancel{\text{H}}}{60\cancel{\text{MIN}}}\right| \left(\frac{1\cancel{\text{MIN}}}{60\text{S}}\right) = \frac{(30)(5280)\text{FT}}{(60)(60)\ \text{S}} = 44\frac{\text{FT}}{\text{S}}$$

$$\frac{\text{FT}}{\text{S}} \times \frac{\text{S}}{\text{MIN}} = \frac{\text{FT} \times \cancel{\text{S}}}{\cancel{\text{S}} \times \text{MIN}} = \frac{\text{FT}}{\text{MIN}}$$

$$\frac{1\text{ IN.}}{2.54\text{ CM}} = 1 \quad \text{OR} \quad \frac{2.54\text{ CM}}{1\text{ IN.}} = 1$$

11-12

I was astounded by how much I never thought was a part of reading.

I can definitly see where pre-reading will reduce my time and increase my comprehension.

I intend to use my focus points and cut down on eye movement

ALPENA
COMMUNITY COLLEGE

666 JOHNSON STREET
ALPENA MI 49707-1495

(517) 356-9021

April 29, 1992

Dear Paul,

We decided to write this letter to inform you about what we're doing in our Wednesday afternoon communications class. As a result of a government grant, we are able to continue our education while working toward college credit.

As a group, we're working on ways to become better communicators. This serves as an introduction for some and a refresher for others, leading to higher education for all. We have a good mix of people who actively participate in class and are becoming more comfortable communicating. We are becoming less fearful of rejection and more receptive to constructive criticism.

In order to improve our reading and writing skills, we have critiqued each other on articles we've written in class. We have given oral presentations in front of a video camera to help develop our speaking and listening skills. Reviewing and critiquing teaches us to be more comfortable with the give and take that is crucial to good communications.

We appreciate the opportunity to extend our education in a comfortable environment. We hope that more people see the value of this benefit as we have. We believe that improving ourselves improves the Fletcher team. We welcome you to attend any of our future classes.

Thank you,

Teammembers:

BEST COPY AVAILABLE

May 5, 1992

Dear Paul:

We would like to inform you about the progress we are making in our ACC-FPC Tuesday Communications class. We are beginning to feel comfortable with the class, our classmates, and the instructor. This class is designed to improve our communication skills both in the workplace and in our personal lives.

As a class, we decided in an open forum what would be the most useful curriculum to pursue. For the filming, we demonstrated the difference between one and two-way communication. In later classes, we learned about listening skills, reading comprehension, and business writing principles. Grammar and punctuation were also briefly reviewed. Through in-class writing assignments, we each identified our strong points so we could work on our weaknesses as communicators. Recently, we videotaped a presentation on a topic of our choice to help us see ourselves as others see us. Future projects include enhancement of computer skills through writing assignments.

We feel that the convenience of having the class on-site is a positive aspect of our communications class. We would like to invite you to sit in and observe us in the Mill Training Room. Please note that the class meets on Tuesdays from 11:30 a.m. to 1:30 p.m. and that we have only two weeks remaining. We are looking forward to seeing you.

Sincerely,

Tuesday's Communications Class

MAY 5 92

FIRST TIME AROUND SO IT IS HARD TO JUDGE SO FAR SO GOOD. GLAD TO BE ABLE TO INTERACT, NOT JUST A LECTURE TYPE CLASS. GROUP INVOLVEMENT AND PROBLEM SOLVING IS GREAT!

GOOD THAT CLASS STEERS TOWARDS GROUPS NEEDS AND WANTS. LOOKING FORWARD TO FUTURE CLASSES. WILL TRY TO GET MORE PEOPLE INVOLVED. THINK THIS WAS A GOOD ICE BREAKER FOR FLETCHER MGT-UNION RELATIONS TEAM BUILDING!

PS TELL PAUL TO BRING PIZZA HUT PIZZA WHEN HE SHOWS!

SERIOUS!

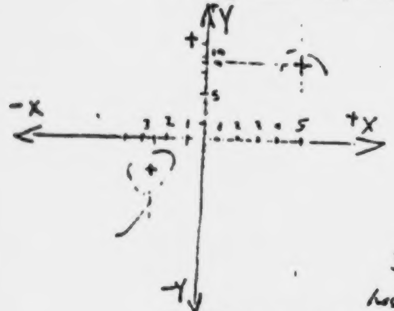
Excellent
100

TRAINING THE TRAINER

Name____________________

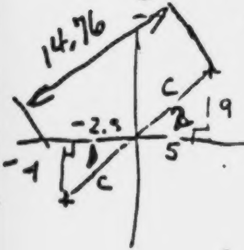
The most important part of this assignment is your ability to answer the following questions as if you were explaining the answer to someone else. Assume that the person you are instructing knows almost nothing about this material. Therefore, it is more important on these problems to descibe how you would answer than it is to have the correct answer.

1. Define the (x,y) coordinate system by drawing the axis and labeling the points 5x,9y and -4x,-2.5y.



Locking at a coordinate systam, zero being the center point, all values on the Horizontal axis are X, those to the left are negative(-) those on the right are positive(+) THE vertical axis is regarded as the Y. THOSE values above the X axis on top of zero(0) are positive(+) Those values found below the x axis are -negative. To find the values 5X and 9Y, you count off 5 spaces in the + direction, 9 Spaces in the + direction. (see illustration at left). -4x is found on the left hand side of zero(0) and -2.5Y is counted below the Horizontal axis of X

2. If a cut was needed between the two above points, describe how could you determine the distance between these points.



✓ 1. Draw a line straight thru the two points.

2. In the coordinate system all points make a right triangle. So drop a vertical line and Horz. lines making 2 triangles

3. you need to the Pythagorean theorm $A^2+B^2=C^2$ or $C=\sqrt{A^2+B^2}$

4. LABEL SIDE C

5 Figure side c for Both triangles and label them and add the two values together — that will be your distance between points

$1 = \sqrt{(-4^2+-2^2)}$ $1 = \sqrt{(20)}$ $2 = \sqrt{(5^2+9^2)}$ $\sqrt{(106}$

$1 = \sqrt{(16+4)}$ $1 = 4.47$ $2 = \sqrt{(25+81)}$ $2 = (10.29)$

1+2 = Distance between pts

4.47+10.29 = 14.76

3. Explain how the z axis fits into the x,y coordinate system and how you would label a point.

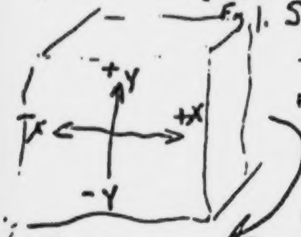


Fig 1.

Fig 1. Say your looking straight at the coordinate system on a box and you turn the box 90°

Fig 2. Now you'll see the z axis, and the Y axis, But not the X. (x will apear only as a dot.

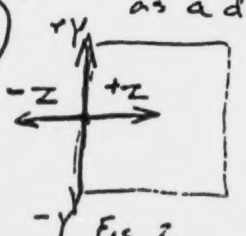


Fig 2.

x

K Sumerix

NO SUCH THING AS A TYPICAL DAY

Just what does a product development chemist do? That is a good question that will probably conjure up an image of a person in a lab coat mixing up test tubes full of smelly, funny looking chemicals all day. That image is partly true, but only partly.

That is how my day started out today but it didn't stay that way long. The salesman who sells us silicones for release papers stopped by at 8:00 and I wanted to talk to him about a problem we are having getting the proper release for one customer. A good salesman can often be a big help in solving problems like this and he made some good suggestions.

Back to the lab about 9:30 but I didn't make it; the phone rang. The caller was our best customer with good news; field tests of a new product we are working on look very good and he would like some more of it by yesterday. If there is such a thing as a good problem this is one. I will have to see about getting base paper made, check our chemical supplies and see when we can cram a short run into an already full schedule. (Production managers just love this!)

Customer relations is the most important part of this job. We do not normally develop commodity products for use by a lot of customers. We more often work on special products for a particular end use by one or maybe just a few customers. This usually means working with the customer on almost every phase of a project, from idea to feasibility study to field testing to production. Along the way are lab work, coater trials, more lab work, scale-up trials, tests to run and specifications to write. Only when the customer is satisfied will we go into production.

Speaking of coater trials, we have some scheduled for tomorrow so I should write up a formula for the man who makes up the coating. The coater crew also needs instuctions on what we're trying to accomplish and how we're going to go about it. I guess I better make sure the base paper is here in the plant, not in the warehouse.

I would like to get back to the lab but there is a problem in production and I need to do some troubleshooting. Most of the products we make are rather tricky and often need some technical support.

On the way to class I need to stop in the mill and talk to someone about a problem we are having with some base paper. On a typical day I would be back in the lab mixing up batches of smelly chemicals but in this job there is no such thing as a typical day.

During our break today we read that Ford was buying part of Mazdas' Flat Rock Plant. So it was decided that Bobs' mazda might not be a foriegn car after all.

MATH 080

BAKER

100%

NAME ____________

DATE 1-7-93

Use your calculator to answer the following.

1. 353 x 9 = 3177

2. 4.16 - 0.51 = 3.65

3. 7(4 + 6) - 9 = 61

4. 3/4 + 1/8 = $\frac{7}{8}$

5. 3/8 x 1/5 = $\frac{3}{40}$

6. 1/2 - 1/4 = $\frac{1}{4}$

Convert:

7. 121.8mm to in 4.795 in

8. 9.37in to cm 23.7998 cm

9. 2.314cm to in .911 in

10. 21.3in^3 to cm^3 349.044 cm^3

11. Given the dimensions:
Length = 3.751in
Width = 1.623in

Find the area. 6.088 in^2

12. For a certain circle, the diameter is 1.572in. What is the circumference of the circle?

4.939 in .786

13. What is the area of the circle?

1.941 in^2

Use your calculator to find:

14. 5^2 25

15. $\sqrt{31.5}$ 5.61248608

16. $\frac{1}{51}$ .0196

17. 0.212^3 .0095

18. $\sqrt[3]{23.9}$ 2.880

19. sin 35° .5735764436

20. cos 16° .9612616959

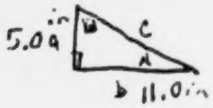
21. Find the volume of a metal bin 4.500ft x 16.350ft x 3.800ft?

279.585 ft^3

MATH 080

BAKER

22. The two shortest sides of a right triangle are 11.0in and 5.0in. Draw this triangle. How long is the longest side? What is the measure of the angles?



Longest side is 12.083 inches.

$\tan A = \frac{a}{b}$

$\tan A = \frac{5.0\,in}{11.0\,in}$: $A = 24°26'38''$

$B = 65°33'21.76''$

23. What is 21.721° in:

Degrees 21° Minutes 43' Seconds 15.6"

24. What size piece of sheet metal would you need to make a piece of stove pipe 9.5 inches in diameter and 35 inches long?

35" × 29.845"

25. How many cubic yards of concrete would it take to pour a garage floor 28ft by 17.5ft a thickness of 3.5 inches?

V = L×W×h

V = 28 ft × 17.5 ft

490 ft²

$\boxed{5.293\ yd^3}$

1,037

.0648

26. If a scientific calculator becomes "stuck" in a unusable mode, how would you fix it to be able to use it again?

Press Mode key and then #9

MacMaster
WPP 080
Final group project
4th draft

"We are Besser employees participating in a federal grant program administered by Alpena Community College and supported by Besser Company. Our course title is Workplace Communications.

"Each person had a different reason for taking the course, but the most prominent goal was to learn to communicate more effectively both at work and in the community. Communication is a tool everyone utilizes daily, though not always to its fullest potential. We know that to survive, we have to improve.

"We learned to work together to achieve success. Communicating is more than just talking. We need to think about eye contact, speaking loud and clear, and keeping an open mind. Listening is fifty percent of communication. You can't communicate with someone who won't listen and no one can communicate with you if you don't listen. We will now be able to express ourselves more readily and effectively, rather than hope someone else will say what we want said.

"Knowing that you can make a point without changing an opinion, we invite you to come see how our tax dollars are being invested."

Communication is a part of life. like a skill is to one's trade. To gain knowledge in life, one has to learn how to communicate efficiently. It is unfortunate many people go through life, unable to enjoy the full advantages of communicating wisely.

Notes on Student Work

Page 1: A young man did this homework by hand. Widely known as the most talented graphic artist in town, he works in sheet metal fabrication.

Page 2: A random log entry from a reading improvement class. The man who made this entry worked in maintenance; he was a problem solver for a living. He made this this comment once in class: "Nothing makes my brain work better than sweat on it." A good man and a nationally recognized rifle coach.

Pages 3 & 4: Group letters from a pair of communications classes to the company CEO. The CEO, incidentally, did attend both classes a short time later, a move the members of both classes held in high regard.

Page 5: An informal assessment of the communications class previously mentioned. As the PS indicates, the CEO had not yet made it to class when the feedback was given. The author's nickname was Sparky, which I believes comes through in the prose.

Page 6: This train the trainer exam runs another six pages, incorporating every concept an operator of CNC equipment would need to know. Obviously this student knew his job, which was the rule among this group. But they were so used to precision in their work, and because they were so accustomed to working alone, it was hard for this group of potential trainers to be verbal enough to convey what they knew to potential trainees.

Page 7: A man with a degree in chemical engineering wrote this piece. What was he doing in class? He wanted a controlled setting in which to practice up on his public speaking skills because he thought he might have to go on the road in more of a sales capacity.

Page 8: The man who wrote this could be easily underestimated. He looked like the prototypical northern cedar savage with a beard and an all-purpose laugh to go with a thick chest and a fair-sized gut. But he was one of the brightest students in class, and one of the most open to learning. He had a very good sense for combining ideas and writing tight prose that had a funny underside, proving to me that you can't pigeonhole adult learners. They come in all shapes and sizes, and more importantly, with uncommon skills and interests that don't necessarily pertain to what they do for a living.

Pages 9, 10 & 11: A test that indicates the range of material covered in a one-credit workplace math class. (One credit equals sixteen hours of instruction). The test also indicates student mastery of pertinent story problems, conversions, and calculator functions.

Page 12: A final group project. The message was sent to local and state-level political representatives, but it mainly was directed to management across the street.

Page 13: The simple eloquence of a bright man and a good worker who found out when he returned from his honeymoon that he was going to be laid off.

CHAPTER ELEVEN

The CNC Component

"Is this for us?"

- Student to Instructor

Perhaps our most ambitious and concentrated effort involved working with Besser Company to come up with a support system for the development of more CNC operators. CNC machines, as noted earlier, represent the high tech future in manufacturing. Lasers guided by computer do the cutting; operators of these computer nummerically controlled machines must understand programming as well as the esoteric language of numbers that tells the machine what operation to perform at what speed and at which step along the way.

Besser's need was complicated but not unique. Top-heavy with an aging workforce disinclined to learn new technology that would make their old skills obsolete, the company was caught in a double bind. Many high-seniority department leaders didn't know how to run CNC equipment, and so training within the company in this vital new area was haphazard at best. And because the best potential trainers - the men who knew how to make it run - tended to be low-seniority, they had to worry that if they taught someone with more seniority how to run their machine, they might be out of a job if there were cutbacks in their department.

We dropped ourselves somewhat unsuspectingly into the middle of this political minefield. I say somewhat unsuspectingly because by this point, more than a year into the project, we were aware that every aspect of a workplace education project becomes part of company politics. There is no avoiding the fact that the education provider will be in the middle of a number of highly charged issues that have long histories; it's important to play it down the middle, siding with no one. Brokering deals between antagonists does not pay off in the long run.

Basic Skills vs. Training

The first issue we had to come to grips with was the perception among the students that we were working more for management than we were for them. When the student asked, "Is this for us?" he was illuminating without realizing it the fundamental difference between basic skills education and training. On the surface, this might seem like a distinction in terminology only educators would see a need to fight over. But in the reality of the workplace, it is a highly significant distinction.

Basic skills education in the workplace focuses on teaching adults how to learn. Organizational skills, problem-solving and decision-making are emphasized. What is learned in class may be used on the job tomorrow or at home next year. It is the student's choice how extensively it's used, what it's used for, and when it's use is most expedient. Education is a process that continues across a lifetime. How well the process is assimilated may determine how effective the worker is in a variety of situations calling for critical thinking skills and application of prior knowledge.

Training is the acquisition of a skill or process, usually for a specific job. If a company needs lathe operators, for example, they'll train employees in the specific operations of lathes. Training often meets the immediate needs of the employer and enhances the short-term employability of the employee. But training does not provide the foundation basic skills education does for helping workers branch off into different areas. Workplace students often perceive training as more beneficial to the company than to their own interests and they will react with skepticism if a workplace program, advertised as basic skills, veers toward a training approach.

On the other hand, business must be served in any workplace partnership. Company management has to see something in it for them. The education provider can't expect management to buy-in indefinitely to the nebulous goal of working toward a more educated workforce. They'll want to see a timeline working toward specific material they can really use.

In a hostile work enviroment where labor is the only voice represented in the classroom, it can be overly tempting to make management the enemy and to strawman its intentions. Guard against losing perspective. Ask yourself this question: Who are we doing this for? If the most honest answer is, "Because it suits our needs," rethink your approach. The role of the education provider is to serve, not to be served.

Summary of CNC Pilot Project

By Rita Macy
Workplace Partnership Project Director

The communications and math instructor team-taught the train-the-trainer class in basic communications, called Communications 080. During the course, instruction focused on getting these six potential trainers to explain how their machines worked (each CNC machine works a little differently, even those that perform the same functions) as though they were teaching someone else. Verbal and written communications skills were stressed.

The exploratory Math 080 and Reading 080 were also CNC specific. Math was taught based on general math examples that would be encountered on the job such as plotting graphs, solving equations, and right angle trig. The reading class addressed how to read a CNC manual, scanning for specific detail, and using reading skills to assist in understanding CNC codes.

The thirteen students who went through both CNC Math and CNC Reading were then put in class with the six graduates of the trainer class for four weeks of machine instruction under the supervision of a master CNC technician from the Alpena Community College faculty.

The result of the course was a great deal of company satisfaction with a new resource model. In addition, new teaching strategies emerged as teachers became very familiar with totally contextualized instruction and delivery strategies. We relied heavily on student feedback and our own introspective written comments to help us strengthen the quality of the courses.

We have developed a replicable model that is new and to our knowledge unlike any others. Anyone can learn the details and memorize information. Learning how to learn, make on-the-job decisions, and begin to understand the process behind the underlying math and reading theory base for specific machine operations became the crucial teaching task at hand.

CNC Reading

By Janet Fulton
Workplace Partnership Reading Improvement Instructor

Some workplace computer applications present unique opportunities for instruction. Such was the case with the Computer Numerically Controlled (CNC) reading class, where we addressed reading improvement while trying to orient students to CNC machine material. This effort was combined with a Train the Trainer project, where workers with experience on CNC machines were trained to be trainers of promising workers without CNC background.

Developing curriculum in the CNC Reading class was challenging because the tape that runs the computers is numerically-based. The intent in the CNC reading class was not to teach what the numbers meant, but to focus the class on reading improvement in context of CNC. We used manuals, plant research, specialized vocabulary, and technical textbook selections to build theoretical constructs while highlighting reading skills such as: (1) skimming and scanning (particularly important for retrieving information from a manual); (2) finding the main idea of a text or the thesis statement from an article; (3) recognizing supporting details; (4) reading for meaning (understanding how CNC machinery works); (5) vocabulary development (words used in a CNC environment); (6) using prior knowledge; and (7) developing comparison and contrastive skills to help read texts that feature visual organizers.

Two companies were represented in the classroom - a parent company and a wholly-owned subsidiary. Besser Company, the parent company, had more complex CNC machinery that did its subsidiary, Baker Enterprises. The disparity in the skill levels of the students created a very fertile learning environment because workers with lesser CNC experience could dialogue freely with workers who'd had more exposure to the equipment. The result, in many cases, was to dispel myths about computer machinery. Also, because not all CNC machines are set up the same, workers familiar with certain machines could interact with workers familiar with other machines and everyone in class could profit from their interaction. Class participants learned from each other as they used their existing prior knowledge and adapted it to class problems and specific plant applications.

CNC - Train the Trainer

By Don MacMaster
Workplace Partnership Communications Instructor

Personal reflections: Class 1

We have six watchful students in class. Kendall (Sumerix, the WPP Math instructor) has had a lot of these students before. I don't know any of them, except from the interviews. After some introductory comments, Kendall gives them a CNC math test he'd devised last week covering speeds and feeds, reading blueprints, the x,y coordinate systems - everything a CNC operator would need to know to do his job. The idea behind the test was to get them to explain how they came up with their answers, and they dug into it with considerable interest, working on it for more than an hour. They are bright men, no doubt.

When they were done, I broached the topic in this way. "Think about the best teachers you had in school and explain why you thought they were good teachers." I went to the board to write down their responses. Either they were bored, tired, or nervous about talking out loud because it wasn't easy to get them to think of even the basics - (organized, makes learning fun, knows the material, can relate to people) - but eventually they did.

Dan is the most inquisitive student in the group. He volunteers a thought, saying, "We've probably all had the experience of having a teacher that really knew the material but couldn't get the knowledge across to somebody else."

"Good point," I reply. Since question one on the test was the x-y coordinate system, I go first for that example. "How would you go about explaining the x-y coordinate system to me?" I ask.

He blushed. Like everyone else, myself included, I think he assumed that teaching is a breeze until he actually had to sit down and think of how to do it. But he led me though it.

Dan: "Draw a vertical line."

Me: "Vertical?"

Dan: "Up and down."

As I was drawing it on the board, he said: "And label that y. Then make a horizontal line through the middle of y and label that x. Where x and y meet, label that (0,0)."

Me: "What does that mean, (0,0)?"

Dan: "Everything on y below x is negative - less than zero."

Me: "Can you give me an example?"

He knew I was playing dumb but it didn't bother him. As he wracked his brain, I couldn't resist and came out with, "You mean, say, I'm a member of Congress and I write a check at the bank there with insufficient funds in my account, I'm on the y axis below x?"

Dan: "There you go," he replies with a grin. "You got the concept."

Personal reflections: Class 2

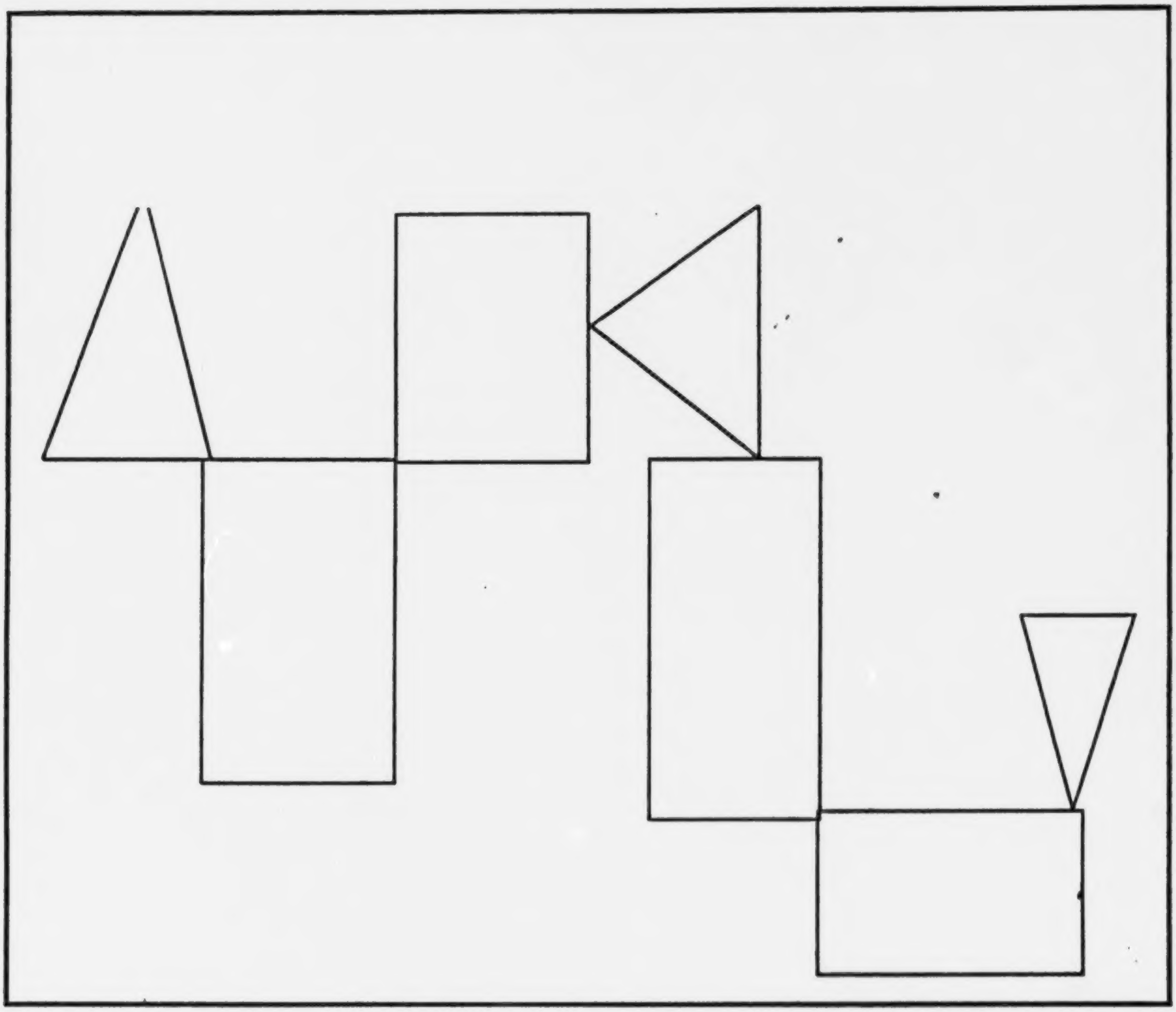
I started with the Hawkins diagram* on two-way communication. The idea behind this exercise is to get the group talking and listening to each other. The exercise involves one student describing a collage of geometric shapes on paper to the rest of the class, who try to recreate the collage based on the student's ability to describe it accurately. The first time through, no questions are allowed. The second time through, the class is allowed to ask questions. When students compare the first drawing to the second, it gives them a clear reference for the value of good questions.

When I asked for volunteers, three hands went up. Mike went first, sounding a little nervous but in control. He did it in a way I hadn't seen done before, telling the guys to divide their paper into quadrants and working through the collage in clockwise fashion - very systematic and organized:

"In quadrant two, two-thirds of the distance across the top of the rectangle you just drew, along the same plane, make a point. From that point, extend a line vertically half the height of the rectangle you just drew. That line will be the base of an equilateral triangle that faces left."

When Mike was finished, I called on Tom, who also is extremely quiet. He too rose to the occasion, demonstrating an organized, patient approach, rarely losing his place or his train of thought.

When Tom was done, I went around the room and had each student give Tom and Mike some feedback. I asked them how it felt to speak in front of a group ("different") and what they'd do differently if they had a chance to do it all over again. The most interesting aspect of the assignment to me was how well the men did at drawing the collage. They did almost as well without asking any questions as they did when two-way communication was allowed. They asked very few questions at all, it turned out, because they got it straight the first time.



Sample diagram. Do not use in exercise.

Only verbal communication is permitted.

Personal reflections: Class 3

This is a well-mannered group. They don't spew without having thought it through. Up to know, it's been hard to know if they were shy or we were just boring them. They would just solve the problem or answer the question with little or no elaboration, yet very watchfully. But today they let their guard down. Their primary concern was wondering where the company was heading with this.

The leaders, traditionally responsible for all the training in their departments, were being bypassed with this arrangement. Each member of the train the trainer class said that he was feeling some heat from his leader about taking this class.

If there's no extra pay for us to be trainers, one student wondered, why should we get involved? A couple men went deeper into this issue, explaining that due to long-term resentments among certain employees in the shop toward management, machines would often be set up to intentionally scrap parts. One man said he had to take 45 minutes at the start of every shift to make sure nothing had been done to sabotage his machine.

They're a bright bunch, confident in their ability to stay ahead of changing technology, so they aren't worried about losing their jobs. But they are acutely conscious of having been put in the middle of a situation not of their own making. They sensed they've stuck their necks out and they want to know how far.

Personal reflection: Class 4

The best class so far, pure enjoyment for me. Kendall and I had planned on finishing up with having them describe step-by-step how to run their machines, which we thought would take anywhere from a half hour to forty-five minutes, and then have them go through the pre-test we'd given them on the first day of class. No way did I figure it would take them all two hours to describe how they run their machines, but once they got going they really took off in some fascinating directions.

Jim went first. He is extremely detail-oriented anyway, and he went through every step as if he were explaining how to run the machine to a trainee. After asking questions about terminology and some of the assumptions he was making about the person he was explaining this material to, I could see instructional considerations begin to wash over him as he proceeded.

Then some of the others began asking him questions about his machine and its special characteristics and suddenly the class seemed to be transformed from vague exploration to a fast-paced nuts and bolts discussion of different machines and skills required to run them.

This really triggered the interest of everyone in class, Kendall and I included, because as they questioned each other, opening up avenues of inquiry we would've had no idea to look down, we could ask them to flesh out the details and put them in language that a layman/trainee could understand. Kendall and I essentially became the trainees.

These men were all extremely bright and so as we went along, all of us getting more into it, the challenge for Kendall and I became not just to ask a question, but to ask the *right* question - the question that would not only expand upon a point but would explain the point that led to the next step in the process. It felt like we'd just discovered a charged particle. By allowing them to be teachers, we were allowing them to be teachers.

After our first class, when I wondered if they would ever say anything, this crisp articulation was especially welcome. When I commented on this at the end of class, that I wondered if they were quiet for a reason or just by nature, Mike gave me a broad explanatory grin and said, "Well, machinists by nature are a melancholy bunch."

LAST CNC MATH CLASS

KEN SUMERIX

APRIL 29, 1992

The class went quite well today. Several of the students spent a large amount of time on their homework which was due today. One student was unable to finish the assignment and one student forget his at home. Both students are the better students in class and stated that they would give the assignment to me by next Monday. Everyone else turned it in and was finished. Several stated that they had spent over four hours on the work. I am impressed! They are willing to put a lot of work into it. The particular assignment, trigonometry, is valued highly by these people. Trigonometry is a skill which everyone at Besser feels that they need to possess. They really do want to understand the concepts! They ask several questions, both today and last week, which went beyond what I had explained.

Four students seemed to have a struggle with the material. Three of these worked very hard and were committed to learning--and, I believe, learned a lot. For others, it was a review of exercise of the mind. Perhaps the greatest satisfaction comes from watching students who knew very little (initially) come to a point where they feel confident about their work. Their work, in this case, is something that they have never seen before (or at least never understood)!

CHAPTER TWELVE

The Productivity Question

"If you can't measure it and put it on a graph, what good is it?"

- anon.

The productivity question dogs workplace education projects every step of the way, challenging the education provider to prove quantifiably that what's been taught in class has translated into increased productivity in the workplace. Grant funding agencies are particularly interested in seeing projects they give large amounts of money to post measurable gains. Some business managers will need to see immediate proof of a payoff on a balance sheet, while others will be satisfied in the short term with softer stuff such as feedback from workers saying that they valued their time in class. But in the long run, except in a few rare cases, the bottom line rules. If the education provider can't make a case for improving the productivity of the workers who've taken classes, the obvious conclusion follows: why continue funding an ineffective program?

Proving an increase in company or employee productivity poses an enormous challenge for the eduation provider. Most small to medium-sized companies do not have sophisticated measures for company productivity. Nor is the sample group large enough to collect much relevant data. If the project is grant-funded, chances are the timeline will be short. Opportunities to collect data will be limited to the duration of the grant, eliminating most longitudinal studies comparing company performance before and after to the period the program was in place. And even if company performance changed appreciably during the time the education program was in place, how can that change be reliably attributed to the workplace education program?

Other daunting questions the education provider that seeks to prove increased productivity will face: How do you measure increased self-esteem and motivation to learn in the learner and how do you measure its impact on company productivity? How do you quantify human behavior? If the company is in the process of downsizing and some students who have taken workplace classes have been laid off, how does the reduction in workforce skew the sample? If some workers have taken classes and some have not and they are all mixed into the production process, can productivity be correlated just to those who've taken classes over those who haven't? If attendance or tardiness or frequency of work-related ideas volunteered by students is the evaluative measure, how are variables such illness and injury identified and factored out of the study?

Many large companies have well-paid, highly-trained experts on board that work fulltime on figuring out ways to answer these questions. Most workplace education projects are staffed by part-time instructors who spend most of their preparation time developing curriculum. They simply do not have the resources or the number-crunching experience to perform research of this complexity. And yet, if they want to validate themselves, they have to somehow find a way to get it done. Here's a four-step outline developed by David Moore of the Community College of Aurora in Denver, Colorado.

A Four Step Evaluation Plan

(1) Reaction evaluation - the focus here is on student attitudes. "What I got out of the course."

(2) Learning evaluation - through tests, simulations, and skill demonstrations, you ask students to essentially explain back to you what they've learned. A typical simulation might involve having students demonstrate competency on an in-house product or process at the beginning of class and again the end, looking at improvements in the error rate.

(3) Behavioral or Skill Application - look at whether or not the student can transfer what he/she has learned in class to the workplace. This inventory also includes non-observable results such as work ethic or job satisfaction.

(4) Impact evaluation - a company-driven examination of the causal relationship between workplace education and production productivity.

Step Four

The first three steps can be done quite easily in the classroom. But the fourth takes some doing. The argument for workplace education projects goes as follows: Because workers are more literate they are not making more widgets, they are making better widgets. They won't necessarily have more ideas, but they'll have better ideas. They'll have better expression of those ideas and they'll be better able to converse with management.

Two factors go into proving workplace education made a difference - quality of product and employee involvement. Results criteria such as scrap rate, meantime between warrantable failures, labor hours per unit of production, ok off-line, and on-time delivery rate are all measures of product. They all have direct cost implications to the company and if they all show improvement over pre-intervention levels, a correlation between basic skills education and productivity may be shown. Pulling it back one step to product quality weeds out some of the variables and moves the productivity question closer to the source - the operator's performance.

Employee involvement criteria includes attendance and tardiness and involvement in higher-level problem-solving groups. Another factor to consider is an employee's willingness to train new employees after going through workplace education classes, as well as how often the employee bids for new jobs. If it can be shown that graduates of workplace education project are more involved, then that indicates contribution and value to their business.

During our grant timeline, the Besser Company downsized its workforce by nearly one-third. Management and labor were both cut back. Clearly this skews any productivity study. One factor to look at if a large number of employee/students have been laid-off is the rate they were re-employed compared to employees who didn't take classes or to layoffs from other companies. If graduates of a workplace education program are consistently re-employed faster than those who didn't take classes, that's another measure of productivity.

The key point to step four is that the company needs to have devised some productivity index. The education provider may have a menu of measurables to show the business partner, but if these measurables don't somehow enhance the business partner's competitive position management will have little incentive to institute them. Step four is company driven. The education provider cannot prove the productivity question without the business partner's help.

"When you start making people feel better about themselves, you're going to have productivity increase. Because they feel better about themselves. That's what it's all about. People are people. A person comes in every morning and says, 'Aw, back in the salt mines again,' productivity is going to be there but not as high as when you got that spark of enthusiasm. When you got that spark, people are going to put out ten percent more without realizing that they put out ten percent more."

- Gordon Udell
  Besser Shop Steward

CHAPTER THIRTEEN

Evaluation

"The real benefits of this program are the unmeasurable ones."

- Joe Gentry
Human Resources Manager

If assessment is comparable to a sprinter coming out of the starting blocks, evaluation is when the sprinter crosses the finish line and the timekeeper clicks the stopwatch. Nobody is indifferent about what the stopwatch says, least of all the sprinter; it evaluates how well he's performed. But there are a number of variables that factor into the performance that the time does not reflect - factors such as the sprinter's previous best time, his physical condition, the weather conditions, the condition of the track, his frame of mind, whether it was a preliminary heat or the final, whether or not he was winning, and how hard he was being pushed by the rest of the field. Based on all these factors, the sprinter evaluates his performance. The stopwatch quantifies a baseline, but the evaluation belongs to the sprinter and he will judge himself primarily on subjective data.

To stretch this analogy one step further, standardized tests of adult literacy are to workplace education projects as the stopwatch is to the sprinter - a very imprecise measure of overall performance. But some evaluative tool is obviously necessary, and for lack of a better instrument, we used the Educational Testing Service's (ETS) tests of applied literacy skills and the TABE (Test of Adult Basic Education) to establish some parameters. We gave the same test pre and post so we could chart student improvement during the course. As the sample ETS scores on the following page indicate, signficant improvement did occur in the classroom in some cases.

WORKPLACE PARTNERSHIP PROJECT
COMMUNICATIONS ETS TEST SCORES
PRE AND POST TEST
DECEMBER, 1991

	Pre-Test		Post-Test	
Name	ss	rs	ss	rs
Student 1	18	310	23	370
Student 2	19	320	22	350
Student 3	20	330	24	390
Student 4	22	350	21	340
Student 5	20	330	22	350
Student 6	16	290	20	330
Student 7	19	320	21	340

WORKPLACE PARTNERSHIP READING ETS TEST SCORES
OCTOBER, 1991

	Pre-Test		Post-Test	
Name	ss	rs	ss	rs
Student 1	23	370	24	390
Student 2	21	340	24	390
Student 3	19	320	22	350
Student 4	23	370	24	390
Student 5	22	350	23	370

WORKPLACE GENERAL MATH

MATH 080 - BAKER

SUMERIX

JANUARY 7, 1993

NAME	Pre-test Sumerix	Post-test Sumerix	% Improved	Pre-test TABE	Post-test TABE	% Improved
	68%	87%	28%	57%	80%	51%
	43%	81%	88%	67%	80%	19%
	47%	94%	100%	60%	87%	45%
	51%	100%	96%	67%	93%	39%
	35%	99%	183%	40%	73%	83%
	31%	97%	213%	93%	87%	- 6%
	30%	79%	163%	67%	80%	19%
	63%	87%	38%	53%	87%	64%

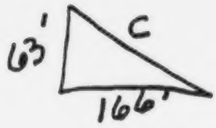
The main problem we found with the standardized literacy tests was that they bored the men. They were too easy in most cases and the men had a hard time seeing why it was necessary for them to spend more than 10 percent of their total classtime taking tests that had no bearing on what they do for a living. They perceived them as government tests, as paperwork that had to be filled out, rather than true indicators of their basic literacy levels.

In order to gather a better indication of improvement, we devised informal pre and post tests that weren't normed or standardized but were job or content-specific. As the graph below shows, there was a loose correlation between our informal pre and post tests and the pre and post standardized scores. But more importantly, I think, the content in our informal pre and post tests could be geared directly toward the content management wanted to see covered in class. In the case of Baker Enterprises, as the informal test on the following page indicates, that was trig, story problems, and using the scientific calculator.

WPP TRIGONOMETRY
BAKER

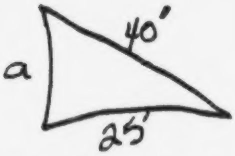
Name

1. A certain parking lot is rectangular in shape. One side measures 63ft. and another side measures 166ft. . How far would it measure across the diagonal from corner to corner?



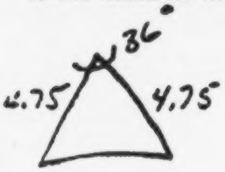
$c = 177.553$ ft.

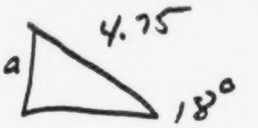
2. Your are standing 25ft. from the bottom of an electric pole. The drawing shows that the guy wire at your feet is 40ft. long and it stretches to the top of the pole. How tall is the pole?



$a = 31.225'$

3. A draftsman sets a pair of dividers so that the angle between them is 36.0°. What is the distance between them if each leg is 4.75in. long?



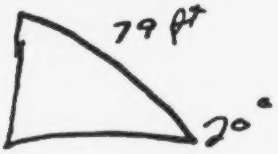


$\boxed{a = 1.468}$

$\boxed{2.936''}$

$\sin A = \frac{O}{H}$

4. A conveyor is to be hung such that the material will be carried up no more than a 20° incline. If the conveyor is 79ft. long, and one end sits on the floor, how high should the other end be suspended above the floor?



$\boxed{a = 27.02'}$

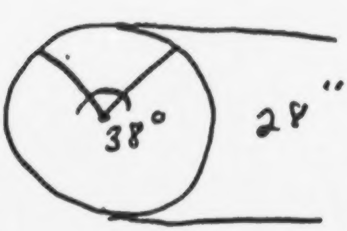
$c(\sin A) = \frac{a}{\cancel{c}}$

$c \times \sin A = a$

$79' \times .342$

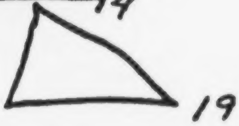
$a = 27.02'$

5. What is the distance between two points on a wheel 38° apart on the circumferance, given that the diameter of the wheel is 28.000 in..



$\boxed{a = 4.558}$

$\boxed{9.116''}$



$\sin A = \frac{O}{H}$

$a \times 2$

In communications classes, the instructor devised a rubric such as pair reproduced below to informally measure student skill levels in areas deemed important to writing and communications. A writing sample in the beginning of class and another at the conclusion of class formed the basis for the pre assessment and the post evaluation.

MacMaster
Informal pre-test
Scoring rubric

Student name:
WPP Communications

1 - Superior
2 - Good
3 - Fair
4 - Poor
5 - Failing

ORGANIZATION	4
CLARITY	4
STRUCTURE	4
SPELLING	5
GRAMMAR	5
PUNCTUATION	4
TONE	3
VOCABULARY	3

Comments:

John is a bright, personable young father who has plenty of leadership potential. What could hold him back are his writing skills, which are very primitive. He's hard to reach in this area because he has no sense for when something looks wrong. But John will improve because he doesn't give up. He wants to get better.

MacMaster
Informal post-test
Scoring rubric

Student name:
WPP Communications

1 - Superior
2 - Good
3 - Fair
4 - Poor
5 - Failing

ORGANIZATION	2
CLARITY	2
STRUCTURE	2
SPELLING	4
GRAMMAR	3
PUNCTUATION	3
TONE	2
VOCABULARY	3

Comments:

John is still a very bad speller and grammarian, but as a communicator, I think he improved in every way. He communicates well to begin with, verbally, because he listens and he asks pertinent questions. But he said he really enjoyed the final group project and the exercises I took from Hawkins, especially the one in which he had the opportunity to instruct. John is very serious about learning. He was a pleasure to have in class.

In reading improvement classes, a number of informal evaluative tools were used. Journal entries, such as the one reproduced below from CNC Reading, were a good example of portfolio assessment at work. The checklist on the following page incorporated every assignment covered in class. As the directions indicate, the students should only check those items that they felt showed their progress.

4/21/92

I expected a completely different approach to CNC Reading. The skill that I came to the class with in reguard to CNC reading, I thought, needed to be polished or formalized. Moving in a complete different direction by getting back to basec English was refreshing. I enjoyed finding a new approach to reading, skim, scan, etc... I feel as though I reassured myself, that the reading skill I already had was not all that terrible as compared with some of my Class-mates. Yet I found that I could still improve and have.

Thank you

Workplace Partnership Project
Portfolio Checklist Design

The portfolio Checklist that follows provides a list of student interest and accomplishment in the course: Reading Improvement B, Session II.

First, students have either placed a check mark or their initials in front of the materials that they have decided to keep from this course. They were instructed to choose only those items they would use and value for future reference.

Second, students were instructed to underline all those items that they felt showed their progress, or in some way indicated their learning path in this reading development process. After they completed this selection they were asked to write a short paragraph describing why they had chosen those particular articles and/or exercises. The prose discussion follows the Portfolio Checklist.

As an instructor I have found this kind of portfolio assessment interesting and revealing. I has given me some immediate feedback to be used in this curriculum evaluation and design.

Name________________________
Date:________________________

Workplace Reading Improvement 081
Portfolio Checklist

1. Course Organization
    ___ Course Syllabus
    ___ Personal Baseline Data (Yellow Index Card)
    ___ Individual Education Plan (IEP)
    ___ Check Your Reading Habits

2. Reading Methods/Exercises
    ___ Reader's Digest - Word Power Exercise
    ___ Interpret What You Read
    ___ Relate The New To The Old
    ___ Analyze The Argument
    ___ Practical Suggestions For Reading Faster
    ___ How To Read Faster (Bill Cosby article)
    ___ Reading As Thinking
    ___ Editorial - Clinton Isn't Winning The People
    ___ Reading Worksheet (3 Completed Handouts)
    ___ News Article - Column Worksheet
    ___ Check Your Reading Habits
    ___ Using PRO
    ___ PRO Exercises
    ___ The Process Of Reading
    ___ Prediction In Reading Exercise (Worksheet/Answer Sheet)
    ___ Scanning Instructions
    ___ Scanning - Exercise 4

3. Reading Drills
    ___ How To Improve Phrase Comprehension
    ___ Perceptual Drill 2
    ___ Perceptual Drill 4
    ___ Perceptual Drill 5
    ___ Perceptual Drill 6
    ___ Perception Drills - Chapter 1 with Answer Sheet
    ___ Perception Drills - Chapter 7 with Answer Sheet
    ___ Perception Drills - Chapter 12 with Answer Sheet

4. Computer Assisted Instruction
    ___ Computer Lab Procedure
    ___ Computer Lab Program - Hangman
    ___ Computer Lab Program - Word Attack
    ___ Computer Lab Program - Rhubarb
    ___ Individual Computer Program Review

5. Class Reactions
    ___ Individual Daily Class Logs (1 Per Class Session)
    ___ Impact and Evaluation Handout

We used student attitude surveys as a third evaluative measure. We told the students up front that we wanted to know what they thought about the project and we asked them to tell us what they thought from the beginning to the end of every course. Sometimes, as the journal entry from the reading class noted earlier indicates, we asked students to address their satisfaction or dissatisfaction with us in log entries. But at the end of every class, we would distribute a lengthy attitude survey asking students to rate us on a scale of one to five (five being the highest) on a variety of questions related to the class, their perception of their learning gains, and our performance as instructors. A copy of some of their comments is included below.

But to summarize, more than two thirds of the respondents answered either 4 or 5 to four main questions: (1) Were you satisfied with the content of the course; (2) Was the instructor well-organized and helpful; (3) Are you satisfied with what you learned in the class; and (4) Would you like to take other workplace classes in the future.

Informal Survey
Workplace Partnership Reading Class
First Session #1 September 1991 - November 1991

1. In what way has the course helped you on-the-job?

   I can cover more material in less time with more comprehension.
   I can separate important reading material from unimportant material.
   Being aware of new words adds to my vocabulary.
   Reinforced some reading techniques I had forgotten and thus increased my reading speed.

2. In what way has the course helped you on a personal basis?

   I need to read more and now that need has been fulfilled.
   Helped me to determine reading for fun, and reading for knowledge.
   Increased reading speed.

3. Comments/suggestions?

   Instructor, Janet Fulton, knew the material and had her special way to teach us. It was great.

Second session #2 November - December 1991
Workplace Partnership General Math

1. In what way has the course helped you on-the-job?

   By being able to rapidly add and subtract mixed fractions and decimals.
   Better able to use calculator; I can do my job faster.
   Helped me to understand how the measurements are gotten.
   I has helped me to learn how to use the calculator on the job.

Informal survey
2-2-2-2

2. In what way has the course helped you on a personal basis?

   It has given me more confidence in myself. I feel as though I'm ready to advance my education further.
   On the proper use of calculator with fractions and on metrics in general.
   Improved my math ability.
   Helped with my study habits.
   Helped me with my math class at ACC.

3. Other comments/suggestions?

   I enjoyed the two hour classes. I just wish there was more of them.

Fourth session #4 March - May '92
Workplace Partnership Communications

1. In what way has the course helped you on-the-job?

   Gave me confidence and made me a better listener.
   Increased my ease of communications.
   I was able to improve my report writing and refocus my efforts to the more important aspects of writing.
   It has helped me to recognize some of my communications weaknesses and has helped me to gain a bit more confidence when using these skills.
   It has helped me communicate more freely and easily with my peers.

2. In what way has the course helped you on a personal basis?

   It has helped me to be more friendly and talkative with my family and friends.
   I do a better job coaching sports.
   Speaking in a group
   Increased my self-esteem.
   Better writing techniques - passive/active, flow, tracking...

Informal survey
3-3-3-3

3. Other comments/suggestions?

   One of the best classes I have attended. Thank you.
   Good lead-in to other classes.
   Very helpful class.
   Students will get out as much as they put in.
   I really liked the way the class opened up to each other.

As one last kind of informal evaluative measure, the writing/communications instructor wrote a page on each student at the end of each course, such as the one reproduced below. These evaluations were meant as much to refocus the instructor on what worked and what failed to work in the class just completed as they were to informally gauge student progress. Student performance is linked to instructor performance, and so evaluations necessarily overlap. The key point is being open to feedback, no matter where it comes from.

MacMaster
Fletcher - WPP
Eng 081
Informal assessment

JOE CHARLES*

My sense is that I should have been harder on Joe. He told me in his final journal entry that he has always been a lazy writer, and looking back over the course I can see that he was telling me the truth, as is Joe's custom. I can see a number of points along the way when I had Joe's complete attention but I let him slide because he looked as if he were getting tired or discouraged by the process of refining and revising his work. Joe says he thinks in images, mainly. In other words, when he sees something new, it's in a self-contained burst of inspiration. One of our most productive sessions, I think, was when I asked him to identify a work-related burst of inspiration that solved a problem - Joe's job is problem-solving essentially - and then break it down and describe it so I could understand the problem and his solution to the problem. Because Joe thinks visually and writes with descriptive flair, it was not hard at all for him to come up with a catchy first line that set the scene. But as he proceeded into the carpentry of putting ideas down on paper, he got stuck trying to make the transition from his lead to the body. Watching him try to work through and build that bridge, I could see it was hard work for him. For some reason, I let him slide just as he was confronting being blocked. I can't explain it because I would not have let Alvin Lee* off the hook that easily. It wasn't a question of affection or anything like that; I like both men a great deal. It was the look on Joe's face, I think, kind of a pale strain that said, "I've been working all day already; don't make me think anymore," that swayed me. But if you don't force someone to think, obviously they won't improve as a writer, since writing is nothing but thought on paper.

*names have been changed

CHAPTER FOURTEEN

The Team Concept

"It seems to be working, whatever 'it' is."

- ACC facultyperson to WPP instructor

Critics of workplace education often claim that practitioners spend too much time on self-evaluation and not enough on issues such as the productivity question. The implication is that teachers become too self-absorbed and lose track of the big picture. Perhaps that's true.

Teaching in the workplace is a constant challenge; the best teachers and administrators pour their heart and soul into it. What's clear from a distance can get fuzzy up close. On the inside, two principles apply: (1) settling for lip service and mediocrity in course design will eventually kill the project; and (2) the instructional team really needs to be a team to survive.

We were fortunate to have Rita Macy as our project director. She established a framework for teamwork by scheduling a meeting once a week. These meetings were pivotal. By sharing problems and potential solutions, we avoided the turf battles that plague many educational institutions. Under Rita's leadership, we didn't waste much time on who got credit; she kept us focused.

Here were some specific things she asked us to do: observe our peer instructors at least once during each round of classes and give written feedback; make a journal entry for every class taught and a personal reflection at the conclusion of the course; fill out a form evaluating her performance for every round of classes; and be available to meet and share insights with the advisory teams and oversight committee.

Calls for teamwork only work when the leader is willing to lead by example. Rita sold us on the idea of self-evaluation by responding to our comments and criticisms. The message she conveyed was to stay away from lip service by saying what you mean in a positive, productive manner. I believe that innate philosophy carried our program a long way.

The following pages are samples of some of the thought that went into our self-evaluation.

Workplace Partnership Project
Janet M. Fulton
Reading Improvement B - Instructor
December 20, 1991

Personal Reflection

I have had the pleasure of working with adult learners over the past twelve years. This teaching experience continues to reinforce the qualities and characteristics of the adult learner. They are directed and have specific goals and respond to meaningful encouragement.

The teaching challenges came in three areas. The first challenge relates to the course design and interview process. I met the second session students in class, on the first day of class. This meant that I had very little background on the student's felt needs and desires and/or motivation for taking Reading Improvement B. Of course, that is not all bad. However, it is helpful in planning and adjusting curriculum needs to interview prospective students. (I need to add that I am usually part of the Besser interviews but was unable to participate in this round of interviews due to a conflict in scheduling.) Instructionally, the first class turned into a meaningful discussion involving students in describing their expectations and personal attitudes concerning the course offering. I was also prepared with some meaningful reading exercises, as well, for the class to complete. This was possible because I was teaching virtually the same course as the first session with adjustments for a two hour time block along with different student needs.

I was pleased to have had a successful first session and that created a good baseline for evaluating the course curriculum. The two hour time block presented some interesting challenges. It was much more difficult to "leave them wanting more". It was harder to give the students bite size content. On the other hand, it was easier to complete the introduction of new reading techniques and give reading experience all in one session. The only real problem with that is the amount of concentration necessary to accomplish that amount of material. My verdict is still out on which is better, one or two hour class blocks.

The third challenge to instructional material in this session centers around the time of day. Students found it very difficult to concentrate 2-4p.m. . Many of them had already completed a full working day prior to the session. You have to have class sometime but the two hour block may have been too much for many of these employees. I tried to keep a variety of topics and learning activities planned to help them overcome this drawback. Some were successful and some were not.

Adults are both eager and afraid to learn. They don't want to make mistakes. None of us do. I believe one thing that really helped them personally, emotionally and instructionally was the specific pre and post testing device I used. At the beginning of the course they were able, through self scoring, to arrive at their personal WPM reading and comprehension rate. Every student responded in the same way. They had a concrete place to start their reading development process. They were relieved to discover where they were compared to a national average. Finally, they wanted to improve. At the end of the course they completed the same reading test. Again, they had an instant personal assessment. They understood that as their WPM increased their comprehension would go down initially and then begin to increase. As they completed their scoring I could see visible excitement for what they had accomplished.

Teaching reading methods and techniques had produced my desired result. The tutor type approach and organizattion of the material and exercises had produced individual improvement is accordance with the students felt needs. I guessed at the structure of the class and it seemed to pay off. It was important for these adult learners to accomplish their goals. They did and in the course of meaningful instruction.

This type of course creation is exciting. It keeps you constantly evaluating and adjusting the curriculum to keep a balance between student needs/expectations and meaningful academic content. What could be more full of challenge and fullfillment?

WORKPLACE PARTNERSHIP PROJECT
POST OBSERVATION NARRATIVE

Teacher: Kendall Sumerix

Date: October 19, 1992

Observer: Rita A. Macy

Class: Geometry (Besser Computer Lab)

1. Describe the lesson and the educational setting.

   Students were working on various geometry formulas as a large group and together in smaller sections. There are 7 students in the class. Each one has access to an IBM computer.

2. How did the instructor act as facilitator?

   Kendall explained the various formulas and materials that students would work with in lecture format. Students were then allowed practice and interactive time.

3. What kinds of materials were used and why?

   Handouts that followed the lessons were used with some guidelines and sample problems. (All problems were work station specific.) Cardboard constructions of angles were also used.

4. What was the intention of the lesson?

   - To learn to figure sine/co-sine through hands-on measurement and applied instruction. Metrics are being taught through group interaction and conversion problems.

5. Describe the community of the classroom? How were students involved in the learning process? How did they interact with each other? With the instructor?

   Interaction was high. Students broke into groups of two or worked as a part of the whole group. They worked, checked answers and were obviously really learning a new process.

6. Provide examples of the instructor recognizing students' input, experience, or needs.

Ken is always nearby, walking among the class answering questions and applying immediate feedback. He realizes that one student is having a rough time starting up and Ken helps him focus on the process not his mistakes.

7. Suggestions or comments.

Nice work. This is the first time I've observed your class working in small groups. There were some excellent questions being asked by students as they worked together. I believe, as we've discussed, that classes of 6-10 are truly the best.

Janet Fulton's
evaluation of Rita Macy

ADMINISTRATIVE EVALUATION

Write a brief narrative that addresses the following:

1. Specific ways in which you had positive, helpful administrative support.

I appreciated the continued written team meeting agendas. That fact made it apparent as to the nature of my activities and reports due. Rita was also quite helpful this session in providing semi-formal consultations on optional class activities and/or methods for teaching this different group of students (all shop personnel) and this different time structure (2 hour class sessions).

2. Specific ways in which you needed more direction and support.

I had all the support I could take advantage of. Rita was always ready to make an appointment to meet with me if I had any questions and/or concerns.

3. Your most positive classroom experience so far.

The concluding exercises this session were particularly gratifying. As I asked them to give me their feedback over the course and what they had learned . . . they all were able to give me specific points that they were going to apply certain meaningful ideas or techniques they had learned from the course.

4. Please address the organization, content, goals, intentions, and future of the project based on how you will perceive the administrative leadership to be handling these items and what needs to be improved.

Rita is forward thinking. She is constantly keeping a pulse of the program running in two directions. She is planning and preparing for the future while she is trying to upgrade and assist in the present.

5. Specific instructional needs (guidance) that you received or need and did not receive. If you did not receive what you expected, how did you communicate these wishes to your supervisor.

Our team meeting agendas where Rita planned to give us and guide us in her specific project concerns and goals were hampered by weather and other meetings. She was always good to document her ideas and pass them on to us as memos. I found this helpful.

6. How open do you think the lines of communication are?

Extremely! Rita tries to listen to our concerns, goals and objections. She deals with them quickly and effectively from what I have seen and experienced.

7. Anything else that you feel needs to be improved for the sake of the project.

I'd like to get the Besser news and views regularly without a special trip to the plant. I also feel a need for more workplace print based materials to be collected and culled for possible instructional content. Maybe these are my responsibilities, but I feel time is so limited when classes are on that it's hard to constantly keep fresh material collection going.

Workplace Partnership Project
Peer Evaluation

Instructor: Don MacMaster
Course: WPP-Communications
Date: 12-12-91

I believe the thing I appreciate most about Don's classes is that they really demonstrate shared ownership. It is hard to get the feel of a class in simply one session but I saw a few important aspects to the overall program in general, and this class in particular.

We work with adult learners in this program. Don is able to motivate and encourage his students to try what may seem uncomfortable to them. He helps them see that teamwork is necessary to their development in and out of the workplace. The day of my visit he acted extremely well as a facilitator. The assignment was a group project exercise. Each student contributed his ideas to a single written summary/evaluation of the class. This final document was clearly devised with an important and influential audience in mind. The students were trying to create a piece of writing to send to the "overseers" of the Federal Project as well as Besser Management.

During the exercise Don acted as a recorder, listing all of their comments and ideas on the board. At different times he would ask them to evaluate the structure and idea formation. The class was then forced to rework certain sections by agreeing that the meaning of a sentence was ambiguous or redundant. Together they arrived at a group consensus. They used Don as a resource when they had exhausted all other ideas. Don for his part was a great encourager. Instead of giving them his ideas directly he always asked them: "You said that one way. Help me rephrase that. Flesh it out for me."

It was particularly pleasing to see ideas generated and turned into an effective communication medium...writing. The exercise that preceded the entire activity was perfect for getting the class to function as a group. It was an excellent warm-up exercise.

Don's gentle but guided direction in the classroom is a wonderful example for all of us in this project.

Instructor: D. McMaster
Class: Communications
Date: 12-12-91

Please give an overall rating to the teacher based on a Likeart scale of one to five with five as the highest rating on the following:

Well prepared:	1	2	3	[✓ 4]	5
Explains the lesson well:	1	2	3	[✓ 4]	5
Addresses the needs of the students:	1	2	3	4	[✓ 5]
Asks for student input and uses it:	1	2	3	4	[✓ 5]
Acts as a facilitator, enabling the students to have ownership in the lesson:	1	2	3	4	[✓ 5]
Shows a purpose in the lesson:	1	2	3	[✓ 4]	5
Is open to student suggestion:	1	2	3	4	[✓ 5]
Seems to enjoy being in the classroom:	1	2	3	4	[✓ 5]
Pleasant:	1	2	3	4	[✓ 5]
Organized:	1	2	3	[✓ 4]	5
Uses a variety of techniques and materials:	1	2	[✓ 3]	4	5
Knows the students by name:	1	2	3	4	[✓ 5]
Reviews and ties in the last lesson to this one (if appropriate):	1	2	3	[✓ 4]	5
Seems to understand the process of learning as applicable to the lesson:	1	2	3	[✓ 4]	5

Other?

Do is especially good at giving the class ownership in the class.

MacMaster
Personal reflection
12/12/91

I think I learned more than I taught the first time around. Honing in as I'm inclined to do on the way individuals interact within a larger group setting, I was fascinated by the personalities that emerged in class. As an instructor, the pace of the interactions and the hunger the students displayed for new and interesting materials and projects forced me to consider ways I could be better organized. Too many times, especially in the first few classes, I found that the goal I wanted them to get to either befuddled or bored them. I don't think I do a good enough job of explaining why I want something done, or even what it is I want done. I tend to instruct the same way my best instructors did in high school and college, and that is along a Montessori line, where the instructor's role is to encourage and motivate the student into taking control over his own learning. That is the way I liked to learn, on my own, so I figure the students will like that too. The obvious flaw in this thinking is that everyone learns differently. Many people, many very bright people, prefer structure and order in their learning environment. And if they don't get it, they get frustrated and turn off on the class, figuring it's a waste of time. In a way, it comes down to how the student perceives the role of the teacher - conveyor of information in logically ordered and chronologically correct form, or a facilitator whose main function is to monitor the progress of the group and develop a community feeling and eagerness to learn in the classroom. On a subconscious level, I suppose, it seemed to me that my way was right for this group. On a conscious level, I had to realize that I was teaching the only way I knew how. To a large extent, I based how I proceeded on the feedback I received from the group, though it took me too long to trust their judgement enough to really change my approach when it wasn't working. For instance, I figured they needed a refresher course in basic writing before we moved on, foundation work before we remodeled, you might say. But I moved too slow and almost lost several of them. But then again, I did gain the confidence and motivation of one student as a direct result of the time we spent on writing. So it's hard to know.

I guess I believe that the class is for them, the students, and everything else - management, Besser Co., ACC, the curriculum committee, oversight, advisory, whatever - all falls in behind that central concern. My goal is to get them talking and listening to each other, to see the value of working collaboratively, to see themselves as others see them, and to get them to feel good about expressing themselves. Looking back, what I've taken away from classes I felt were most valuable to me has not been facts, dates, details or a new process. Rather, it was a sense that learning was fun and worthwhile for its own sake. That's what I'm after.

This is to certify that

____

has satisfactorily completed the
Workplace Partnership
course __________________________
from Alpena Community College

____________________ Instructor

__________ Date

ALPENA
COMMUNITY COLLEGE

Congratulations

____________________ Workplace Partnership Manager

____________________ Company President

Phone: (517) 354-4111
Domestic Telex: 810-221-0109
International Telex: 510-440-1320
Telefax: 517-356-1432
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PRESIDENT'S E AWARD
FOR EXCELLENCE IN EXPORT

801 Johnson Street
P.O. Box 336
Alpena, Michigan 49707, U.S.A.

22 June 1992

Rita A. Macy, Asst. Dean
Workplace Partnership Manager
ALPENA COMMUNITY COLLEGE
666 Johnson Street
Alpena, MI 49707-1495

Dear Rita:

Besser Company would like to take this opportunity to thank you and Alpena Community College for your efforts on behalf of our joint workplace partnership which has provided a new opportunity for Besser team members to upgrade their skills. Your efforts to secure a new grant that would enable a continued partnership with not only Besser Company but other employers in the area would be a real plus for our community. As we are all aware, Alpena is an industrial community which is struggling and this human resource development opportunity gives us another plus in marketing our area. Our student participants best summarize the program's success:

Reading -- Very worthwhile
Mathematics -- Absolute application in the workplace
Communication -- Good class; teacher excellent.

What we have accomplished this past year is a team enthusiasm to learn. Our employees are requesting us to expand this partnership that will give them an opportunity to learn basic blueprint reading, ordinance dimensioning and basic computer orientation which they believe is remedial in nature in our technically-changing society. This type of training will allow our U.S. society and business to successfully compete in our new global marketplace.

Very truly yours,

Jere M. Doyle

Jere M. Doyle
Director, Human Resources

Fletcher PAPER
ALPENA, MICHIGAN 49707
(517) 354-2131 • FAX 517-356-6327

June 12, 1992

Mr. Don MacMaster
Ms. Rita A. Macy
Alpena Community College
666 Johnson Street
Alpena, MI 49707

RE: Workplace Partnership Training Program

The Workplace Partnership training program has been very rewarding to watch with acceptance by the Fletcher Employees. Here at Fletcher, we are continuing to change the way we manage our business, get people involved, take an interest and have a sense of pride and self-esteem. The Workplace Partnership training program has been very consistent with the continuing change at Fletcher Paper Company. It has been very gratifying to see employees, who have in the past tend to be timid and reserved, speak out and take initiative. It has been interesting to see employees who tend to not focus on the subject matter and not understand the problem, become better focused, more concise and more analytical in their thought process and their method of expression.

I have tried to be accessible to employees at Fletcher Paper Company and develop an open communicative atmosphere. Allowing people to communicate and giving them the tools to better communicate is one of our goals in the way we manage the business. Your program has given approximately 25 people a better opportunity to participate in the cultural change at Fletcher Paper Company, and I am sure, in a different way for the rest of their life. We certainly appreciate your efforts and hopefully we can get through the summer doldrums and continue with the second and third steps of the Workplace Partnership training program.

Sincerely yours,

Paul T. Hoelderle

Paul T. Hoelderle
President and CEO

Your Custom Papermaker

CHAPTER FIFTEEN

Administrative Evaluation

By Rita Macy
Workplace Partnership Project Director

"To be successful workplace educators, we first had to be successful workplace learners."

- Rita Macy
Project Director

I feel that the Alpena Project was successful in more ways than I can account for on paper. The political, social, and educational issues that we faced for 18 months were all about real-life education. Unlike K - post-secondary students, the people we dealt with on a daily basis were the adult *products* of American education. They reiterated our belief that lifelong learning is the key to a productive and satisfied workforce.

To be successful workplace educators, we first had to be successful workplace learners. We had to listen to their needs and figure out ways of meeting them. In a sense, a workplace education project is an ideal proving ground for any educator. Designing authentic curriculum and creating teaching strategies that address the learning needs of employed adult learners gives educators the opportunity to find out how education fits into the real world of work.

The Alpena Project did not use publisher's materials. Each lesson was planned around authentic materials that students either saw daily on current jobs or wanted to learn more about in order to change jobs. Developing functional contextual materials is not easy. It takes teamwork. Gathering data and collaborating with partners while maintaining accountability to the funding agency are all parts of an intricate process. The result is a useful, practical library of educational resources for each site that business can use to track and address internal learning needs.

The Alpena Project began as I believe many others must have. There was confusion and a lack of understanding between business, labor, and education about roles and responsibilities. There was a lack of communication between federal bodies and the project directors who interpreted regulations to mean that only basic skills could be taught in workplace classes to a targeted number of students. The vision that existed with the inception of most of these projects had to be maintained by the directors, who sought innovative ways of bringing each project together while providing at least some of the needs of management and labor.

An Eight-Point Plan for the Institutionalization of Workplace Education Projects:

(1) Broaden the definition of literacy and basic skills. Besser Company lobbied from the beginning to have us teach keyboarding and basic computer skills. Because they were in the process of instituting a plantwide integrated computer system, a beginning class on computer operations would have been helpful to nearly every employee in the company. But under the grant regulations, computers could not be offered because they weren't deemed "basic skills," or "literacy." They fall under training, according to grant regulations, and cannot be taught. This should be changed.

When Advisory Teams at the worksite are asked to offer suggestions about curriculum that are basic to their professional circumstance, they are being asked for expert advice. When they advise the educator that computer literacy is imperative in order to run the equipment that literally peppers the plant, then this becomes a clear need. Having federal guidelines spell out that computer literacy is not a basic skill flies in the face of the entire partnership concept that relies on shared information from the employer to assist in curriculum design by the educator. The result often is a disgruntled business partner, which the education provider then must deal with over a long period of time.

(2) Each site is different. Student needs are different. "Basic skills" seems to denote something akin to GED classes or classes for the less than functionally literate person. Holding classes only for those who fit

that standard profile clearly marks that group in a negative way. It stymies mixed group interaction and team building.

We encountered this problem many times when workers tried to carry new ideas and successes back to the workplace only to be greeted by supervisors or peers who saw them as "remedial" and unworthy of serious consideration. In fact, our workplace classes often met some highly sophisticated learning needs, but we first had to overcome the notion that "basic skills" meant 1 + 1.

(3) Personal success and learning satisfaction must be a part of the learning plan. Educators from K - post-secondary know based on solid research that the whole student must be taught. That becomes an even more important concept with adults because they bring every bit of learning experience they have to the workplace classroom. They use this information to interact, respond, and learn from their fellow workers. Workplace learning projects do well to emphasize *lifelong learning* as a project goal.

(4) Emphasis from the beginning of the project should be on the employer to measure productivity and the education provider to interpret the data. There can be no standard productivity instrument developed because each worksite is different. A standard plan of development and implementation can be made with the combined effort of both sides, but it is unrealistic to hold educators responsible for what clearly is an economic issue.

(5) Dissemination should be done according to some kind of organized plan that includes all federal projects. Regional meetings should be held and information shared with previous project directors acting as consultants, cataloging the information clearinghouse-style, or each project can simply focus on reporting to ERIC on its strongest, most uniquely valuable information.

(6) Projects should be recognized for on-going achievements. A number of projects received state or national attention for their work. This information should be delivered to all projects so that information could be shared with business and education.

(7) Grants should be reviewed periodically by the project director with the federal project officer to make sure that all questions are answered. Too often, project

directors and federal project officers become antagonists, which damages the credibility of both.

(8) Evaluations should emphasize a blend of qualitative and quantitative data. Research and development means working toward a goal of change. The artifacts collected should reflect that effort. Instructional materials, student work and responses, reactions to class settings, and the business partners' responses are all valuable sources of information. Data gathering must be systematic and all-encompassing.

A system of qualitative evaluation such as portfolio assessment is successful and appropriate to adult learner needs. Standardized tests such as the TABE or the ETS do not adequately measure adult learning gains in a workplace setting. The TABE was normed on a different kind of population. The ETS was normed on a specific type of workplace group that does not fit the profile of the workplace student in northeastern lower Michigan. Neither can ever measure what teacher-made pre and post-tests are designed to measure, which is individual achievement in a specific learning setting that deals with specific functional contextual workplace learning needs.

Legislators would understand this issue if presented with real evidence. The time spent in administering, grading, and evaluating standardized tests such as the ones used by the Alpena Project for the past 18 months takes away from valuable classtime that is truly focused on student learning needs. The reasons we give standardized tests are wrong.

My comments reflect my personal observations and opinions. Respectfully submitted, they are intended to assist with the planning of other projects.

Rita A. Macy

CHAPTER SIXTEEN

Dissemination

"In the midwest, there's a model partnership between business and education..."

- Edwin Newman
narrator of PBS documentary
"Project Lifelong Learning"

If your workplace education project is grant-funded, as ours was, the funding agency in most cases will set guidelines for dissemination. Generally the funding agency will tell you what research they want collected, how they want it packaged, and who they want it sent to. Money will be made available in the grant for dissemination, which likely will include funds to travel to workshops, seminars and conferences. Your obligation is made clear and it's generally fairly limited.

Our experience has been that dissemination needs to be defined more broadly than just satisfying the requirements of your funding agency. For your program to grow a spine of its own, you'll need to spread the word beyond the local party line. Here is a checklist you might consider:

(1) local business

- CEO/President
- human resource managers
- key union leaders
- key salaried employees

(2) neighboring community colleges

- President
- Deans
- human resources directors
- business consultants
- faculty reps
- trustees
- public relations directors

(3) media

- newspapers
- TV
- company newsletters
- trade publications
- teleconferences

(4) labor

- attend meetings at the union hall
- ask for space in local newsletter

(5) other literacy providers

- libraries
- community ed directors
- network with state and national leaders
- ERIC

We targeted local, state and national media outlets as well as fellow community colleges and literacy providers.

On the national level, the Alpena Project was featured in Project Lifelong Learning, a PBS documentary on successful workplace literacy providers. Filmed by WQED/Pittsburgh and WPSX/Penn State and narrated by former NBC anchorman Edwin Newman, the documentary focuses on the factors that contribute to a business/education/labor partnership in a remote, rural setting such as Alpena, as well as some of the long-term benefits of this collaboration.

In addition to the half-hour television documentary, six staff development videos were produced by WPSX. These staff development videos focus on the five strategies noted earlier as contributing to lifelong learning. There is an overview video and an in-depth video that gives examples of ways the strategies can be instituted in new or existing workplace programs.

The workplace documentary has been shown on our local PBS affiliate, WCMU/Mt. Pleasant, and the staff development videos have been made available to all state and local literacy providers, including other community colleges, library-based literacy providers, the public schools in our service district, our local Intermediate School Board and Educational Service District, and human resources managers across our service district.

Also on a national level, our project was written up in Community College, Business and Industry Relations in its February 3, '92 edition. The article focused on the competitive edge offered by partnerships between businesses and community colleges.

We also completed this book, targeting not only business and literacy providers but the general public as well.

Rita Macy, WPP Project Director, attended the project directors' closeout meeting in Washington D.C. as well as other seminars and conferences related to assessment and evaluation. Project staff attended the AAACE annual conference in Anaheim, California, where we gave a roundtable presentation on our project. Project staff was featured on a December 7 teleconference on New Strategies for Literacy and Lifelong Learning sponsored by the Penn State Institute of Adult Literacy.

On the state level, dissemination in the form of student work and attitudes has reached all area political representatives. Michelle Engler, First Lady of Michigan, visited Alpena to discuss the project. Regular meetings of the Oversight Committee included representatives from the Michigan Department of Labor, Northeastern Michigan Council of Governments, the Alpena County Library, the Intermediate School District, plus Alpena Community College and local business partners.

Locally, we have published informational articles in the Alpena News, our local daily newspaper. The Project Director has spoken about our work on Channel 11, our local CBS affiliate. We have tried to maintain a high level of visability while not losing sight of our original goal: Make it real.

CHAPTER SEVENTEEN

Keeping it Going

"Can't we keep going through the holidays?"

- Student to instructor

Keeping it going will be the last and highest hurdle workplace education projects will face. The education provider and the the business partners need to be constantly thinking about how the project might be sustained and adapted to meet new and future needs. The problem for the education provider is that if the instructional team does its job, they will eventually teach themselves out of business at workplace after workplace because there isn't the yearly turnover in the workplace that exists in colleges or the public schools. Similar to project teams in a company that's gone to the team concept approach, once the project is done the job disappears. And the team is left to scramble to catch on somewhere else.

Maintaining continuity is difficult, especially if the project is grant-funded and the money is about to run out. It's hard to hold a team together from grant to grant. Good people tend to move on to prospects offering more security.

But if funding can be found, the next step becomes either finding new partners for basic skills education or targeting specific training needs in the existing partnerships, or both. A good basic skills education will prepare workers for training, so customized training is a logical next step. But often when new partners say they need a better-trained workforce, what they're talking about is basic skills education - reading, writing, math, problem-solving, decision-making. The education provider needs to be prepared to explain the difference without resorting to jargon.

The week our project ended, we received word that we'd been refunded by the Federal Department of Education for another eighteen months. So it's time to slip into road gear and start re-firing the process. There will be plenty of challenges ahead.